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**Bibliography.**

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Summary.

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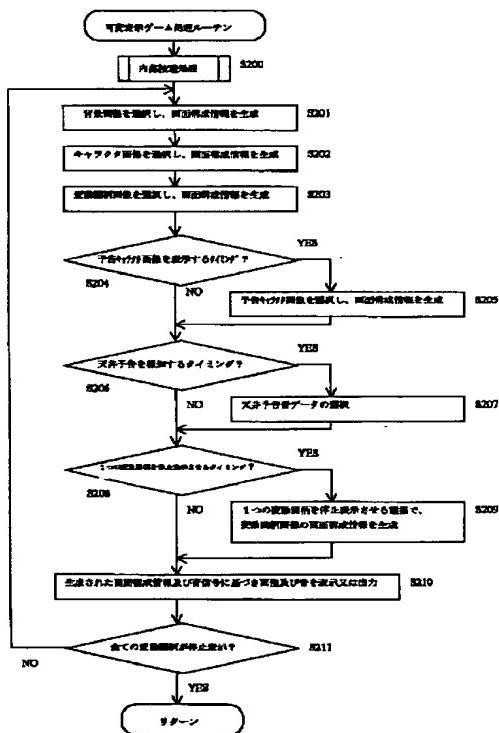
(57) [Abstract]

[Technical problem] When an adjustable display game is repeated and performed,  
even if you are those like a beginner who enjoy a game freely by reporting in

advance approaching or the great success state has resulted in the number of times of the maximum of the adjustable display game of generating once [ at least ], i.e., a ceiling, to a game person with sound, offer a game machine with high possibility that a ceiling can be known.

[Means for Solution] It is the game machine characterized by what the sound outputted [ approaching, or the number of times of the maximum of the adjustable display game that a great success state occurs once / at least / is set up and it has resulted in the number of times of the maximum of this adjustable display game, when an adjustable display game is repeated and performed, and ] from the aforementioned loudspeaker reports.

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## CLAIMS

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[Claim(s)]

[Claim 1] The display which displays the identification information picture which consists of two or more change patterns in which it is indicated by change and a halt indication of each may be given to predetermined timing. And have the loudspeaker which outputs the sound according to the game situation, and this adjustable display game is repeated for 1 cycle of the change display of two or more aforementioned change patterns, or a halt display as 1 time of an adjustable display game. It is the game machine which generates a great success state by having given a halt indication of two or more aforementioned change patterns in a predetermined combination. The number of times of the maximum of the adjustable display game that a great success state occurs once [ at least ] when the aforementioned adjustable display game is repeated and performed is set up. The game machine characterized by what the sound outputted [ approaching, or it has resulted in the number of times of the maximum of this adjustable display game, and ] from the aforementioned loudspeaker reports.

[Claim 2] The game machine according to claim 1 whose sound outputted from the aforementioned loudspeaker is the sound which the effect of a binaural sound makes.

[Claim 3] The sound which the effect of the aforementioned binaural sound makes is a game machine according to claim 2 to which it is the sound which generates a virtual source and the virtual source which generated this virtual source or made it generate is moved.

[Claim 4] The aforementioned loudspeaker is a game machine according to claim 1 to 3 which is a parametric loudspeaker.

[Claim 5] The display as which the screen picture which consists of a picture which combined a dynamic image, a static picture image, or these is suitably displayed according to a game situation. It has the loudspeaker which outputs the sound according to the game situation, and the control section which transmits transmission of the electronic data to the aforementioned display, and the correspondence number to the aforementioned loudspeaker at least. by the aforementioned loudspeaker It is possible to output the sound which the effect of a binaural sound makes. and the aforementioned screen picture The identification information picture which consists of two or more change patterns in which it is indicated by change and a halt indication of each may be given to predetermined timing is included. This adjustable display game is repeated for 1 cycle of the change

display of the aforementioned change pattern, or a halt display as 1 time of an adjustable display game. It is the production expression method of the game machine which generates a great success state by having given a halt indication of two or more aforementioned change patterns in a predetermined combination. The number of times of the maximum of the adjustable display game that a great success state occurs once [ at least ] when the aforementioned adjustable display game is repeated and performed is set up. The production expression method of the game machine characterized by what the sound which the effect of the binaural sound outputted [ approaching, or it has resulted in the number of times of the maximum of this adjustable display game, and ] from the aforementioned loudspeaker makes reports.

[Claim 6] The sound which the effect of the aforementioned binaural sound makes is a game machine according to claim 5 to which it is the sound which generates a virtual source and the virtual source which generated this virtual source or made it generate is moved.

[Claim 7] It is the server which can perform control to which the sound according to the game situation is made to output while displaying the game machine picture which shows a game machine to a terminal. It is possible to perform control to which the sound which the effect of a binaural sound makes to the aforementioned terminal is made to output. And a change indication of each is given according to the situation of the game performed in the aforementioned terminal. The identification information picture which consists of two or more change patterns by which it may be indicated by halt to predetermined timing is displayed. This adjustable display game is repeated for 1 cycle of the change display of two or more aforementioned change patterns, or a halt display as 1 time of an adjustable display game. While generating a great success state by having given a halt indication of two or more aforementioned change patterns in a predetermined combination The number of times of the maximum of the adjustable display game that a great success state occurs once [ at least ] when the aforementioned adjustable display game is repeated and performed is set up. The server characterized by the ability to perform control made to report with the sound which the effect of the binaural sound outputted [ approaching, or it has resulted in the number of times of the maximum of this adjustable display game, and ] from the aforementioned loudspeaker makes to a terminal.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the production expression method and server of game machines, such as pachinko game equipment and pachislot game equipment, and a game machine.

[0002]

[Description of the Prior Art] In this kind of game machine, it has the display which has CRT, a liquid crystal display monitor, etc. in order to make the game state grasp, since a game person is not bored. In this display, usually, in order to excite the interest over a game person's game, in the identification information picture field in which the identification information picture which consists of a change pattern which has two or more identification information which consists of a numeric value etc. is displayed, this change pattern repeats 1 cycle of a change display or a halt display, and is displayed in this adjustable display game considering it as 1 time of an adjustable display game. And while the aforementioned change pattern is indicating by change, production expression which displays background images, such as an animation which has fixed narrativeness in the production picture field in which a production picture is displayed, is performed.

[0003] Moreover, when the aforementioned change pattern indicates by halt in a predetermined combination in the aforementioned adjustable display game, the probability, for example, the probability of 1/250, that will offer an advantageous state to a game person called the so-called great success state, and this great success state will occur at the time of each adjustable display game is set up. That is, when the probability that a great success state will occur is 1/250, if it thinks simply, by repeating a 250 time adjustable display game, I hear that a great success state occurs once, and it is.

[0004] What is reported to a game person by displaying the probability that the aforementioned great success state will occur, in a pachinko hole in recent years is performed, and for every game machine, since great success occurred last time, giving a number-of-times indication of how many times the adjustable display game is performed, i.e., has not the great success state between the adjustable display games of the number of times of how much occurred?, has been performed.

[0005]

[Problem(s) to be Solved by the Invention] However, if a great success state may

occur before repeating an adjustable display game 100 times naturally since it is probability to the last, the probability that the aforementioned great success state will occur may not be generated even if it repeats 1000 times or more. Then, in order to ease the state which a great success state between long periods of time which is not understood how far it continues does not generate, and so-called "HAMARI" to a game person, the so-called "ceiling" is prepared increasingly. When an adjustable display game is repeated and performed, a great success state is the number of times of the maximum of the adjustable display game of generating once [ at least ], and a ceiling will mean the number of times of the adjustable display game that a great success state hits, once [ at least ], if it puts in another way and the number-of-times adjustable display game of only this will be performed.

[0006] therefore, for the game person who knows this ceiling Although it has been possible to stop to stop a game by the small this side which results in to choose the game machine approaching the ceiling using the information on how many times the adjustable display game is performed or a ceiling since great success occurred last time as mentioned above For those who do not know the aforementioned ceiling like a beginner or an unfamiliar game person, stopping a game by the small this side which results in a ceiling will break out, carrying out big investment, when it lapses into HAMARI bad [ fate ].

[0007] about this ceiling, with journals, such as a pachinko capture book, if an adjustable display game (rotation) is performed how many times, it may be returned -- like -- although introduction may be carried out, in a beginner, neither an opportunity to know it nor the few thing which it carries out, furthermore is studied itself is done

[0008] Thus, when it gives up without the ability acquiring a great success state after the game person has continued many investment and pachinko game equipment is left, next, saying [ that a great success state occurs immediately to game someone else who played the game with this pachinko game equipment ] -- as -- it is -- When the game person who attached the aforementioned abandonment notices or knows this, it may become emotional, and the pleasure which plays a game will fade and a result which everybody including the beginner makes spoil enjoyableness [ say / that he can be enjoyed freely ] will be brought.

[0009] this invention is made in view of the technical problem mentioned above, and by reporting approaching, or it has resulted in the ceiling to the game person in advance with sound, even if the purpose is those like a beginner who enjoy a game freely, it is to offer the production expression method and server of a game machine with high possibility that the aforementioned ceiling can be known, and a game machine.

[0010]

[Means for Solving the Problem] In order to attain the above purposes, this invention is characterized by sound reporting approaching, or it has resulted in the ceiling to a game person. More specifically, this invention offers the production

method of the game machine of the following (1) – (7), and a game machine, and a server.

[0011] (1) The display which displays the identification information picture which consists of two or more change patterns in which it is indicated by change and a halt indication of each may be given to predetermined timing, And have the loudspeaker which outputs the sound according to the game situation, and this adjustable display game is repeated for 1 cycle of the change display of two or more aforementioned change patterns, or a halt display as 1 time of an adjustable display game. It is the game machine which generates a great success state by having given a halt indication of two or more aforementioned change patterns in a predetermined combination. The number of times of the maximum of the adjustable display game that a great success state occurs once [ at least ] when the aforementioned adjustable display game is repeated and performed is set up. The game machine characterized by what the sound outputted [ approaching, or it has resulted in the number of times of the maximum of this adjustable display game, and ] from the aforementioned loudspeaker reports.

[0012] According to invention of the above (1), sound reports approaching, or it has resulted in the number of times of the maximum of an adjustable display game (ceiling). Therefore, although it tends to be overlooked that a game person does not gaze at a display when a picture reports this, as compared with the case of a picture, it can report to a game person more certainly by reporting with sound. Moreover, even if it is unfamiliar game persons, such as a beginner, a ceiling can be known easily, and while a game person can prevent abandoning a game machine for the ceiling approaching to not knowing and can improve such a game person's investment efficiency, he feels easy freely and can enjoy the game.

[0013] Moreover, when the aforementioned sound is outputted, while giving surprise to a game person, a feeling of relief can be given, and a hope and the degree of excitement can be raised by carrying out prediction about the whereabouts of the game after a great success state occurs further.

[0014] (2) a game machine given in the above (1) whose sound outputted from the aforementioned loudspeaker is the sound which the effect of a binaural sound makes since it reports approaching or it has resulted in the ceiling with the sound which the effect of a binaural sound makes according to invention of the above (2), production which is unique and new various information, such as notifying close to a game person's his ears, can be performed, for example

[0015] (3) the game machine which the sound which the effect of the aforementioned binaural sound makes is sound which generates a virtual source, and is a publication at the above (2) to which the virtual source which generated this virtual source or made it generate is moved According to invention of the above (3), signs that a ceiling approaches, such as making it sound approach gradually close to his ears [ of for example, a game person ], or making it sound turn around a game person round and round etc., and a great success state approaches can be reported

more uniquely and with reality by moving the virtual source which made it generate. Moreover, while being able to offer the more visionary world and fully being able to give admiration excitedly to a game person, enjoyableness and interest nature can be raised further.

[0016] (4) The aforementioned loudspeaker is a game machine given in either of above-mentioned (1) – (3) which is a parametric loudspeaker. As mentioned above, in this invention, sound reports approaching, or it has resulted in the ceiling. therefore — if reported in the game machine of 1 — this — it can know that a great success state will generate not only the game person that is performing the game but a surrounding game person in the game machine of the above 1 in the near future with the game machine of 1 Thereby, the game person of the game machine of the above 1 may also be noise of a surrounding game person being unable to be worrisome and being unable to permeate a game in the world of concentration or a game. For the game person who does not like such a situation, it is very troublesome.

[0017] However, since according to invention of the above (4) sound to tell a game person can be put and emitted to a strong directive ultrasonic wave by the above-mentioned parametric loudspeaker and sound can be centralized on a predetermined part like a spotlight, If it can prevent that the sound outputted from the game machine of the above 1 will be heard by other game persons and a game is not performed, the aforementioned information can be prevented from understanding. thus, the sound outputted in the game machine of the above 1 reports — having — a case — the above 1 — he can feel easy, and can concentrate on a game and the game person who only the game person of a game machine can hear the above-mentioned sound, consequently is performing the game with the game machine of the above 1 can permeate the world of a game

[0018] (5) The display as which the screen picture which consists of a picture which combined a dynamic image, a static picture image, or these is suitably displayed according to a game situation, It has the loudspeaker which outputs the sound according to the game situation, and the control section which transmits transmission of the electronic data to the aforementioned display, and the correspondence number to the aforementioned loudspeaker at least. by the aforementioned loudspeaker It is possible to output the sound which the effect of a binaural sound makes. and the aforementioned screen picture The identification information picture which consists of two or more change patterns in which it is indicated by change and a halt indication of each may be given to predetermined timing is included. This adjustable display game is repeated for 1 cycle of the change display of the aforementioned change pattern, or a halt display as 1 time of an adjustable display game. It is the production expression method of the game machine which generates a great success state by having given a halt indication of two or more aforementioned change patterns in a predetermined combination. The number of times of the maximum of the adjustable display game that a great success state occurs once [ at least ] when the aforementioned adjustable display game is

repeated and performed is set up. The production expression method of the game machine characterized by what the sound which the effect of the binaural sound outputted [ approaching, or it has resulted in the number of times of the maximum of this adjustable display game, and ] from the aforementioned loudspeaker makes reports.

[0019] According to invention of the above (5), sound reports approaching, or it has resulted in the number of times of the maximum of an adjustable display game (ceiling). Therefore, although it tends to be overlooked that a game person does not gaze at a display when a picture reports this, as compared with the case of a picture, it can report to a game person more certainly by reporting with sound. Moreover, even if it is unfamiliar game persons, such as a beginner, a ceiling can be known easily, and while a game person can prevent abandoning a game machine for the ceiling approaching to not knowing and can improve such a game person's investment efficiency, he feels easy freely and can enjoy the game.

[0020] Moreover, when the aforementioned sound is outputted, while giving surprise to a game person, a feeling of relief can be given, and a hope and the degree of excitement can be raised by carrying out prediction about the whereabouts of the game after a great success state occurs further.

[0021] (6) the game machine which the sound which the effect of the aforementioned binaural sound makes is sound which generates a virtual source, and is a publication at the above (6) to which the virtual source which generated this virtual source or made it generate is moved

[0022] Since according to invention of the above (6) sound to tell a game person can be put and emitted to a strong directive ultrasonic wave by the above-mentioned parametric loudspeaker and sound can be centralized on a predetermined part like a spotlight, if it can prevent that the sound outputted from the game machine of the above 1 will be heard by other game persons and a game is not performed, the aforementioned information can be prevented from understanding. thus, the sound outputted in the game machine of the above 1 reports -- having -- a case -- the above 1 -- he can feel easy, and can concentrate on a game and the game person who only the game person of a game machine can hear the above-mentioned sound, consequently is performing the game with the game machine of the above 1 can permeate the world of a game

[0023] (7) It is the server which can perform control to which the sound according to the game situation is made to output while displaying the game machine picture which shows a game machine to a terminal. It is possible to perform control to which the sound which the effect of a binaural sound makes to the aforementioned terminal is made to output. And a change indication of each is given according to the situation of the game performed in the aforementioned terminal. The identification information picture which consists of two or more change patterns by which it may be indicated by halt to predetermined timing is displayed. This adjustable display game is repeated for 1 cycle of the change display of two or more aforementioned

change patterns, or a halt display as 1 time of an adjustable display game. While generating a great success state by having given a halt indication of two or more aforementioned change patterns in a predetermined combination The number of times of the maximum of the adjustable display game that a great success state occurs once [ at least ] when the aforementioned adjustable display game is repeated and performed is set up. The server characterized by the ability to perform control made to report with the sound which the effect of the binaural sound outputted [ approaching, or it has resulted in the number of times of the maximum of this adjustable display game, and ] from the aforementioned loudspeaker makes to a terminal.

[0024] According to invention of the above (7), sound reports approaching, or it has resulted in the number of times of the maximum of an adjustable display game (ceiling). Therefore, although it tends to be overlooked that a game person does not gaze at a display when a picture reports this, as compared with the case of a picture, it can report to a game person more certainly by reporting with sound. Moreover, even if it is unfamiliar game persons, such as a beginner, a ceiling can be known easily, and while a game person can prevent abandoning a game machine for the ceiling approaching to not knowing and can improve such a game person's investment efficiency, he feels easy freely and can enjoy the game.

[0025] Moreover, when the aforementioned sound is outputted, while giving surprise to a game person, a feeling of relief can be given, and a hope and the degree of excitement can be raised by carrying out prediction about the whereabouts of the game after a great success state occurs further.

[0026] In a [definition-of-term etc. book] specification, "identification information" means identifiable information by visual senses, such as a character, a sign, a pattern, or a pattern.

[0027] The case where "a change display" changes from the pattern "7" which is one identification information when identification information changes one by one to the pattern "8" which are other identification information, In the case while one identification information had been displayed in the viewing area which can display identification information besides in the case of changing to other patterns "\*" from the pattern "9", so that the identification information may move and may be displayed For example, it is a concept including the case where it moves one pattern "7" being displayed in a viewing area etc.

[0028] "The sound which the effect of a binaural sound makes" means the sound in which depth and a breadth are impressed to a game person. the sound which the effect of such a binaural sound makes can obtain by outputting sound based on the correspondence number which performed processing, after performing the processing to which the correlation coefficient which is the sound pressure of the sound in the entrance of both the game person's ears changes, the processing which add the correspondence number which generates reverberation sound as opposed to the sound data used as the correspondence number which generates sound, and this

correspondence number In addition, in this specification, we suppose that sound data mean the electronic data memorized by the storages (for example, ROM etc.) with which the game machine etc. was equipped, and a correspondence number decides to say the electrical signal inputted into a loudspeaker.

[0029] Moreover, although it is possible to output the sound which the effect of a binaural sound usually makes by using two pieces or three loudspeakers or more (circuit) in case sound is outputted based on the correspondence number which performed processing which was mentioned above, or sound data Also in the game machine of this invention, and the terminal (henceforth a terminal etc.) controlled by the server of this invention, it is the same, and the sound which the effect of a binaural sound makes can be outputted by using two pieces or three loudspeakers or more (circuit). Moreover, it is not necessary to necessarily use two pieces or three loudspeakers or more, and you may be one piece in this invention. Moreover, it is not especially limited about the position in which the above-mentioned loudspeaker is prepared. About the position and the number of the above-mentioned loudspeaker, it is possible to set up suitably so that the effect of a binaural sound may fully be acquired with the sound outputted from a loudspeaker.

[0030] moreover, only when announcing beforehand approaching or it did not necessarily need to output the sound which the effect of a binaural sound always makes in the game machine of this invention, for example, has resulted in the ceiling, it is good also as outputting the sound which the effect of the above-mentioned binaural sound makes, and it is desirable that a game person may be made to recognize the above-mentioned preliminary announcement more certainly by using \*\*\*\* which is plurality

[0031] The above-mentioned loudspeaker produced in a game person's feeling means the sound source of the imagination which exists in a different position with the sound to which a "virtual source" is outputted from the loudspeaker with which the game machine etc. was equipped. Therefore, it is sensed that the above-mentioned virtual source back generated in spite of having outputted the loudspeaker with which the game machine which a game person has in a transverse plane when the sound which generates a virtual source by the loudspeaker with which the game machine etc. was equipped when the game person was located in transverse planes, such as a game machine, is outputted and a virtual source is generated behind a game person was equipped to sound to sound is outputted. That is, it means that the above-mentioned virtual source had occurred in a different position from the above-mentioned loudspeaker in a game person's feeling.

[0032] generating the above-mentioned virtual source, before the sound which the effect of a binaural sound makes is sound which generates a virtual source in the game machine of this invention and a preliminary announcement character picture is displayed — or it is desirable to notify of the above-mentioned preliminary announcement character picture being displayed beforehand by moving the above-mentioned virtual source which made it generate It is because the hope about the

whereabouts of a game and the degree of excitement can be further raised while fully being able to give admiration excitedly to a game person, since sound enables it to approach gradually close to his ears [ of a game person ] or a game person's circumference can be reported to it using more unique and new methods, such as making it sound turn round and round etc., as mentioned above for example.

[0033] Hereafter, the above-mentioned virtual source is explained. The acoustic wave from a loudspeaker results in the eardrum of both the game person's ears in response to an operation of the transfer system of places, such as an amusement center and space, in which for example, a game person is, and the transfer system by reflection of a game person's head, a concha, a shoulder, etc., diffraction, and resonance. The transfer function of these transfer systems, i.e., the transfer function from a sound source to external auditory meatus, is called head sound transfer function. The above-mentioned head sound transfer function can be acquired with measuring methods, such as an M sequences method and the cross-spectrum method.

[0034] The above-mentioned virtual source can be processed in sound data or a correspondence number, and can make it generate using the head sound transfer function acquired according to the physical relationship of for example, a game person and the loudspeaker with which the game machine etc. was equipped, physical relationship with the virtual source which makes it generate with a game person, etc. by outputting the sound based on these sound data or a correspondence number.

[0035] It is possible to perform such processing by DSP (Digital Signal Processor) which is a processing unit, for example, it can realize by using an FIR (Finite-duration Impulse Response) filter and filters, such as IIR (Infinite-duration Impulse Response).

[0036] Furthermore, the above-mentioned virtual source will be explained in full detail using drawing 1 -3. Drawing 1 is explanatory drawing shown as compared with the state where the sound outputted by the virtual source to which a listener exists the state where explanatory drawing about a virtual source, i.e., a listener, is hearing the sound outputted by two loudspeakers arranged ahead of this listener in this listener's right rear side is heard. First, it is assumed that Listener A is hearing the sound outputted by the virtual source 210 which exists in Listener's A right rear side.

[0037] The frequency characteristic of the sound outputted by the virtual source 210 at this time If HL and the head sound transfer function from a virtual source 210 to Listener's A right ear (are set [ for example, / sound pressure level, frequency, etc. ]) to HR for VS and the head sound transfer function from a virtual source 210 to Listener's A left ear The frequency characteristic EL of the sound in near the external ear of Listener's A left ear and the frequency characteristic ER of the sound in near the external ear of a right ear can be expressed with (following 1) and following (2) formula, respectively (refer to drawing 1 ).

$EL=VSxHL \dots (1)$

$ER=VSxHR \dots (2)$

[0038] Next, the case where the sound outputted by the loudspeaker 201 (201a, 201b) is being heard is considered. In addition, loudspeaker 201a is located in the left-hand side ahead of Listener A, and loudspeaker 201b is located in the right-hand side ahead of Listener A. LS and the head sound transfer function from loudspeaker 201a to Listener's A left ear for the frequency characteristic of the sound outputted by loudspeaker 201a LGL, The head sound transfer function from loudspeaker 201b to Listener's A right ear is set to LGR. If RGL and the head sound transfer function from loudspeaker 201b to Listener's A right ear are set to RGR for RS and the head sound transfer function from loudspeaker 201b to Listener's A left ear, the frequency characteristic of the sound outputted by loudspeaker 201b The frequency characteristic EL of the sound in near the external ear of Listener's A left ear and the frequency characteristic ER of the sound in near the external ear of a right ear can be expressed with (following 3) and following (4) formula, respectively (refer to drawing 1 ).

[0039]

$EL=LSxLGL+RSxRGL \dots (3)$

$ER=LSxLGR+RSxRGR \dots (4)$

(Following 5) and following (6) formula can be obtained about the frequency characteristic LS of the sound outputted by loudspeaker 201a by the above-mentioned (1) – (4) formula, and the frequency characteristic RS of the sound outputted by loudspeaker 201b (refer to drawing 1 ).

$LS=VSx (RGLxHR-RGRxHL)/XG \dots (5)$

$RS=VSx (-LGLxHR+LGRxHL)/XG \dots (6)$

(However,  $XG=RGLxLGR-RGRxLGL$ )

Moreover, as shown in drawing 1 , when a loudspeaker 201 (201a, 201b) sees from Listener A and is arranged at the bilateral symmetry, let the head sound transfer function, i.e., the head sound transfer function LGL and the head sound transfer function RGR, from a loudspeaker 201 to Listener's A ear of the nearer one be the same head sound transfer function. The same is said of the head sound transfer function to the ear of the one where Listener A is distant from a loudspeaker 201.

[0040] Therefore, if GN and the head sound transfer function to the ear of the one where Listener A is distant from a loudspeaker 201 are set to GF, the above (5) and (6) formulas can also show the head sound transfer function from a loudspeaker 201 to Listener's A ear of the nearer one like (following 7) and following (8) formula, respectively.

$LS=VSx(GFxHR-GNxHL)/(GF2-GN2) \dots (7)$

$RS=VSx(-GNxHR+GFxHL)/(GF2-GN2) \dots (8)$

[0041] Namely, the frequency characteristic VS of the sound outputted by the virtual source 210 is set up. The above (5) and processing using (6) formulas (the above (7) and (8) formulas) are performed to the correspondence number or sound

data made to generate the sound of the frequency characteristic VS. The correspondence number or sound data made to generate the sound of the frequency characteristics LS and RS is obtained, and it becomes possible to generate a virtual source 210 by outputting the sound based on the obtained correspondence number or sound data of the frequency characteristics LS and RS from loudspeaker 201a and loudspeaker 201b, respectively.

[0042] However, when a virtual source is generated by the method mentioned above, there is a possibility that a cross talk may occur in the sound which reaches from a left loudspeaker to a right ear, and the sound which reaches from a right loudspeaker to a left ear. When the above-mentioned cross talk occurs, a listener may memorize sense of incongruity in the position of a virtual source. Such a cross talk can suppress the generating by performing processing which negates the above-mentioned cross talk to the correspondence number which generates the sound outputted by the loudspeaker.

[0043] Next, how to output the sound which generating of the above-mentioned cross talk is suppressed [ sound ] and generates a virtual source is explained. Drawing 2 is explanatory drawing shown as compared with the state where the sound outputted by the virtual source to which a listener exists in this listener's right rear side in explanatory drawing about a virtual source, i.e., the state where the listener is hearing the sound outputted from headphone, is heard. The case where Listener A is hearing the sound outputted by headphone 301 (301a, 301b) is considered. In addition, headphone 301a is located in Listener's A left-hand side, and headphone 301b is located in Listener's A right-hand side.

[0044] If the frequency characteristic of the sound outputted by LP and headphone 301b in the frequency characteristic of the sound outputted by headphone 301a is set to NB, the frequency characteristic EL of sound in near the external ear of Listener's A left ear and the frequency characteristic ER of the sound in a right ear can express RP and the head sound transfer function from headphone 301 (301a, 301b) to Listener's A ear with (following 9) and following (10) formula for it, respectively (refer to drawing 2 ).

[0045]  $EL=LP \times NB \dots (9)$

$ER=RP \times NB \dots (10)$

(Following 11) and following (12) formula can be obtained about the frequency characteristic LP of the sound outputted by the above (1) and (2) formulas, and the above (9) and (10) formulas by headphone 301a, and the frequency characteristic RP of the sound outputted by headphone 301b (refer to drawing 2 ).

[0046]  $LP=VS \times HL/NB \dots (11)$

$RP=VS \times HR/NB \dots (12)$

(Following 13) and following (14) formula can be obtained about the frequency characteristic LS of the sound outputted by the above (7) and (8) formulas, and the above (11) and (12) formulas by loudspeaker 201a, and the frequency characteristic RS of the sound outputted by loudspeaker 201b (refer to drawing 1 and drawing 2 ).

$$LS = [(NB/GN) / \{1 - (GF/GN) 2\}] \times [LP - (GF/GN) \\ \times RP] \dots (13)$$

$$RS = [(NB/GN) / \{1 - (GF/GN) 2\}] \times [RP - (GF/GN) \\ \times LP] \dots (14)$$

[0047] Thus, the frequency characteristic VS of the sound outputted by the virtual source 210 is set up. Processing using the above-mentioned (11) – (14) formula is performed to the correspondence number of the frequency characteristic VS. The correspondence number of the frequency characteristics LS and RS is obtained, and it becomes possible to generate a virtual source 210, without generating most cross talks by outputting the sound based on the correspondence number of the obtained frequency characteristics LS and RS from loudspeaker 201a and loudspeaker 201b, respectively.

[0048] Drawing 3 is explanatory drawing in order to explain explanatory drawing about a virtual source, i.e., process in which processing mentioned above is performed. The correspondence number or sound data (frequency characteristic : LP, RP) outputted by headphone 301 can be obtained by preparing beforehand the correspondence number or sound data used as the sound (frequency characteristic : VS) made to output by the virtual source 210, and processing this correspondence number using the filter 401 obtained by the above (11) and (12). Usually, this processing is called binaural conversion. Next, the correspondence number or sound data (frequency characteristic : LS, RS) made to generate the sound outputted by the loudspeaker 201 can be obtained by processing the obtained correspondence number or sound data (frequency characteristic : LP, RP) using the filters 402 and 403 obtained by the above (13) and (14).

[0049] Thus, while outputting the sound of the frequency characteristic LS by loudspeaker 201a based on the obtained correspondence number or sound data, Listener A senses that sound is outputted from the virtual source 210 generated in the right rear side, in spite of outputting sound from the loudspeaker 201 by outputting the sound of the frequency characteristic RS by loudspeaker 201b. In addition, what is necessary is just to prepare the filters 401–403 corresponding to the movement, in order to move the above-mentioned virtual source.

[0050] moreover, change of the sound which reaches both the ears of the above-mentioned listener according to the movement in consideration of a listener's head moving a little etc. — an amendment — you may prepare the filter which can do things

[0051] In this invention, you may decide to perform the above (5) and processing using (6) to the sound data memorized by the storages (for example, ROM etc.) of the game inside of a plane, or the correspondence number inputted into a loudspeaker, and may decide to perform processing using above-mentioned (11) – (14). Moreover, you may store in the storages (for example, ROM etc.) of the game inside of a plane beforehand the sound data which performed these processings.

[0052] Moreover, as a loudspeaker which can be used in case a virtual source is

generated by method which was mentioned above, a well-known loudspeaker, for example, a cone speaker, a horn loudspeaker, a dome loudspeaker, a capacitor loudspeaker, a ribbon type loudspeaker, an ion type loudspeaker, etc. can be mentioned conventionally.

[0053] A "parametric loudspeaker" is a loudspeaker which sound (acoustic wave of a audio range) to tell a game person is put and outputted [loudspeaker] to a strong directive ultrasonic wave, and centralizes sound on a predetermined part like a spotlight, and it is the loudspeaker which generates sound to tell a game person by carrying out self-detection of the outputted ultrasonic wave using the nonlinear interaction of an acoustic wave.

[0054] In addition, as for a loudspeaker, in the game machine of this invention, it is desirable that it is a parametric loudspeaker. It is because it can concentrate on a game in comfort, without carrying out a shameful thought even if it is the case where a reach state did not occur or a great success state does not occur after a preliminary announcement character picture is displayed, as mentioned above.

Hereafter, the above-mentioned parametric loudspeaker is explained using drawing 4.

[0055] Drawing 4 (a) is explanatory drawing about a parametric loudspeaker, and drawing 4 (b) is drawing showing typically the frequency spectrum of the nonlinear interaction by the sine wave. Moreover, (c) is drawing showing typically the frequency spectrum of the nonlinear interaction by the amplitude modulation wave.

[0056] As shown in drawing 4 (a), the case where the ultrasonic wave of frequency  $f_1$  and the ultrasonic wave (however,  $f_2 > f_1$ ) of frequency  $f_2$  which are a primary acoustic wave are outputted from the parametric loudspeaker 500 is considered. The frequency spectrum which shows the nonlinear interaction of the sine waves in such a situation comes to be shown in drawing 4 (b). That is, when the ultrasonic wave of frequency  $f_1$  and the ultrasonic wave of frequency  $f_2$  which are a primary acoustic wave carry out nonlinear interference, the sound (chord) of the frequency  $(f_2+f_1)$  which is a secondary acoustic wave, and the sound (difference tone) of frequency  $(f_2-f_1)$  are generated (refer to drawing 4 (a) and (b)).

[0057] If the ultrasonic wave of frequency  $f_1$  and the ultrasonic wave of frequency  $f_2$  are outputted from the parametric loudspeaker 500, in a audio range, the sound of frequency  $(f_2-f_1)$  is generable, so that frequency  $(f_2-f_1)$  may turn into frequency of a audio range at this time. Moreover, like an ultrasonic wave, since directivity is strong, the sound of the frequency  $(f_2-f_1)$  generated as mentioned above becomes possible to centralize sound on a predetermined part like a spotlight.

[0058] However, usually, as a parametric loudspeaker is shown in drawing 4 (a) and (b), the ultrasonic wave of different frequency is hardly outputted and it outputs the amplitude modulation wave which is made to modulate the subcarrier of an ultrasonic wave by the modulating signal of a audio range, and is usually obtained. Next, the case where an amplitude modulation wave is outputted from a parametric loudspeaker is explained using drawing 4 (c).

[0059] Usually, the amplitude modulation wave (modulated wave) 501 which is made to modulate a subcarrier by the modulating signal and is obtained contains subcarrier 501a, top wave (upper sideband) 501b, and bottom wave (lower sideband) 501c, as shown in drawing 4 (c). If this amplitude modulation wave 501 receives the nonlinear interaction of an acoustic wave, while subcarrier 501a and top wave 501b will carry out nonlinear interference, subcarrier 501a and bottom wave 501c carry out nonlinear interference. Consequently, the modulated wave 502 which is a secondary acoustic wave equivalent to the above-mentioned modulating signal is generable. That is, self-detection of the amplitude modulation wave 501 can be carried out using the nonlinear interaction of an acoustic wave. In this case, since the above-mentioned modulating signal is outputted as a modulated wave 502 which is a secondary acoustic wave as it is, if it chooses the correspondence number of the audio range used as voice, a sound effect, etc. as the above-mentioned modulating signal and chooses an ultrasonic wave as it at the above-mentioned subcarrier, it will become possible to centralize sound on a predetermined part like a spotlight.

[0060] the sound outputted by this parametric loudspeaker in the game machine of this invention equipped with the parametric loudspeaker mentioned above — the nonlinear interaction of an acoustic wave — \*\*\*\* — only in the field to which the part which a secondary acoustic wave generates, and this secondary acoustic wave are transmitted by things, a game person can hear the sound outputted by this parametric loudspeaker At this time, the part which a secondary acoustic wave generates serves as a sound source of the imagination which exists in a different position from the above-mentioned parametric loudspeaker, \*\*\*\*\*\*, and a virtual source. In addition, it does in this way and, as for the virtual source which made it generate, it is possible by enabling it to change the sense of the above-mentioned parametric loudspeaker etc. to make it move.

[0061]

[Embodiments of the Invention] The example of this invention is explained based on a drawing. In addition, below is equipped with two loudspeakers (loudspeaker which is not a parametric loudspeaker), and suppose that the game machine of this invention which can output the sound which the effect of a binaural sound makes by this loudspeaker is explained. In addition, the above-mentioned game machine shall have memorized the sound data to which processing was beforehand performed by the method mentioned above. Of course, the game machine of this invention is not limited to such a game machine.

[0062] Drawing 5 is the front view showing the game machine of this invention typically. In addition, in the example explained below, the case where this invention is applied to pachinko game equipment is shown as a suitable example of the game machine concerning this invention. The discharge handle 26 and \*\* which were prepared in the right-hand side of the main part frame 12, the game board 14 included in the main part frame 12, the window frame 16 of the main part frame 12 prepared in the front face of the game board 14, the upper pan 20 and the lower pan

22 prepared in the front face of the main part frame 12 with the window frame 16 down side, and the lower pan 22 are arranged at pachinko game equipment 10.

[0063] Moreover, two or more obstacle nails (not shown) are driven into the front face of the game board 14. In addition, it does not consider as composition which drives in a nail, but the game board 14 is fabricated for a resin material, it is good also as composition implanted so that a metal rod-like structure may be projected in the game board 14 of this resin material at the front of the game board 14, and this invention can be applied also to pachinko game equipment 10 (party contest machine) which was mentioned above. In addition, in this specification, it is a concept also containing a party contest machine in pachinko game equipment 10.

[0064] Furthermore, the discharge handle 26 is formed free [ rotation ] to the main part frame 12, and the game person can advance the pachinko game by operating the discharge handle 26. The discharge motor 28 is formed in the background of the discharge handle 26. When rotation operation of the discharge handle 26 is done by the game person in the direction of a clockwise rotation, power is supplied to the discharge motor 28 and the game sphere stored by the upper pan 20 is discharged one by one by the game board 14.

[0065] The discharged game sphere is guided at the guide rail 30 prepared on the game board 14, moves to the upper part of the game board 14, and it falls toward the lower part of the game board 14 after that, changing the travelling direction by the collision with two or more obstacle nails mentioned above. Moreover, the loudspeaker 46 (46a, 46b) is arranged, and pachinko game equipment 10 is constituted by the lower pan 22 bottom so that the sound which the effect of a binaural sound makes can be outputted by the loudspeaker 46.

[0066] Drawing 6 is the expansion front view showing the game board 14 typically. In addition, the same sign was given to the component shown in drawing 5 mentioned above, and the corresponding component. Moreover, drawing 6 showed what was omitted about the obstacle nail mentioned above. The display 32 which is the display which is mentioned later is formed in the center of abbreviation of the front face of the game board 14. Display 52 is formed in the center of the upper part of this display 32. This display 52 consists of for example, 7 segment drops, and an adjustable indication of the common pattern which is display information is given so that change and a halt may be repeated. The sphere passage detectors 55a and 55b are formed in the flank of right and left of display 32. This sphere passage detector 55a or 55b usually suspends the change display of a pattern, after the change display of a pattern is usually started and predetermined carries out time progress in the display 52 mentioned above, when it detects that the game sphere passed through the near. Usually, a pattern is this information that consists of a number, a sign, etc., for example, are signs, such as numbers from "0" to "9", and "\*" When a pattern usually turns into this predetermined pattern, "7", it stops and it is displayed, [ for example, ] Current is supplied to the solenoid 57 (not shown) for driving the movable pieces 58a and 58b prepared in the both sides of right and left of the

starting mouth 44 mentioned later, the movable pieces 58a and 58b are driven so that a game sphere may tend to go into the starting mouth 44 and may become it, and the starting mouth 44 is made to be in an open state. In addition, when predetermined time passes after making the starting mouth 44 into an open state, a movable piece is driven, and a game sphere cannot enter easily and it is made to become by making the starting mouth 44 into a synizesis state.

[0067] Four hold lamps 34a-34d are formed in the both sides of right and left of the display 52 mentioned above. Furthermore, the general winning-a-prize mouth 50 is formed in the upper part of display 52. Moreover, the winning-a-prize mouth 38 of a game sphere is formed in the lower part of the game board 14. Near this winning-a-prize mouth 38, the shutter 40 is formed free [ opening and closing ]. When an adjustable display game changes into a great success state, a shutter 40 is driven by the solenoid 48 (not shown) so that it may be in an open state.

[0068] The general winning-a-prize mouths 54a and 54b are formed in the both sides of right and left of the display 32 mentioned above. Furthermore, the general winning-a-prize mouths 54c and 54d are formed in the both sides of right and left of the display 32 lower part. Moreover, the winning-a-prize mouths 56a and 56b are specially formed in the edge of right and left of the game board 14, and the winning-a-prize mouths 56c and 56d are specially formed in the both sides of right and left of the winning-a-prize mouth 38.

[0069] Moreover, the starting mouth 44 which has the sphere detection sensor 42 used as the opportunity which shifts to a change display state in the plurality which the adjustable display game mentioned later is started and is displayed on display 32, for example, the pattern which are three identification information, is formed. The winning-a-prize mouth 38 mentioned above, the starting mouth 44, the general winning-a-prize mouths 54a-54d, and when a game sphere wins specially a prize of the winning-a-prize mouths 56a-56d, it is made as [ pay / the lower pan 22 / a number of game spheres beforehand set up according to the kind of winning-a-prize mouth ].

[0070] The rolling flare-part material 60a and 60b for guiding the path of a game sphere in the predetermined direction is also formed in the both sides of right and left of display 32 further again. Moreover, the ornament lamps 36a and 36b are formed in the outside upper left-hand side and outside upper right-hand side of the game board 14. In addition, even if the portion which displays the production picture later mentioned in the display 32 mentioned above consists of a liquid crystal display panel, it may consist of the Braun tube. Moreover, in the game board 14 of the pachinko game equipment 10 which is a game machine, although it showed the case where it was prepared in the front center of abbreviation, if display 32 is a position which a game person can see, it is good in the example mentioned above, also as forming display 32 in the position of what of a game machine.

[0071] Furthermore, this invention is applicable also in pachislot game equipment. Drawing 7 is the block diagram showing the control circuit of the pachinko game

equipment which is the example of this invention. The discharge handle 26 mentioned above is connected to the interface-circuitry group 62 of a control circuit 60, and the interface-circuitry group 62 is connected to the input/output bus 64. After the angle signal which shows the rotation angle of the discharge handle 26 is changed into a predetermined signal by the interface-circuitry group 62, it is supplied to an input/output bus 64. The input/output bus 64 is made as [ input / output and / a data signal or an address signal / by the central-process circuit (CPU is called hereafter) 66 ]. Moreover, the sphere detection sensor 42 is also connected to the interface-circuitry group 62 mentioned above, and when a game sphere passes the starting mouth 44, the sphere detection sensor 42 supplies a detecting signal to the interface-circuitry group 62. Furthermore, the sphere passage detector 55 is also connected to the interface-circuitry group 62, and the sphere passage detector 55 supplies a detecting signal to the interface-circuitry group 62, when it detects that the game sphere passed through the near.

[0072] ROM (read-only memory)68 and RAM (random access memory)70 are connected to the input/output bus 64 mentioned above. ROM68 memorizes the control program which controls the flow of the whole game of pachinko game equipment. Furthermore, while memorizing the setting data of a ceiling, in case an adjustable display game is performed in display 32, ROM68 The preliminary announcement character picture which announces beforehand the image data of a change display or the change pattern by which it is indicated by halt, the reliability of reach, and/or the reliability of great success, The character image data which consists of a dynamic body object displayed as a production screen, the background-image data which constitute the background of display 32, and animation image image data are memorized. The initial data for performing a control program, the program which controls the blink operation pattern of the ornament lamp 36 are memorized.

[0073] ROM68 memorizes the sound data used as BGM, a sound effect, voice, etc. further. In addition, the sound data which ROM68 memorizes may be used as the sound data which do not necessarily need to be sound data made to generate the sound which the effect of a binaural sound makes altogether, and are made to generate the sound from which the effect of a binaural sound does not produce a part or all.

[0074] Moreover, as for the sound data made to generate the sound which the effect of the above-mentioned binaural sound makes, it is desirable that it is sound data used as the sound which generates a virtual source. Furthermore, when the sound data with which ROM68 serves as sound which generates a virtual source are memorized, as for the sound data used as the sound which generates the above-mentioned virtual source, it is desirable that it is sound data made to generate the voice which announces beforehand to approach or it has resulted in the ceiling. Moreover, it is good also considering the voice of the preliminary announcement character shown as the above-mentioned preliminary announcement character

picture as sound data for virtual sources.

[0075] When indicating the pattern by change in display 32, in case the pattern image data mentioned above indicates by halt, it is used, and it contains the image data according to various display modes, for example, the expanded picture, the reduced picture, the picture which deformed. Moreover, the character image data and background-image data which consist of a dynamic body object mentioned above, and animation image image data are for displaying on display 32 by making into a screen picture a dynamic image, static picture images, or these pictures that were combined, as a game is directed. Furthermore, the character image data which consists of a dynamic body object mentioned above contains the image data corresponding to each of operation that operation of a character should be displayed.

[0076] Moreover, RAM70 memorizes the value of the flag used by the program mentioned above, or a variable. For example, the accumulation reach data, the number of accumulation change, and the number of times of accumulation great success which show the history of the result of an operation by new input data and new CPU66 or a game are memorized. By calling and performing a predetermined program, CPU66 which is a control section performs data processing, and controls transmission and others by making into a correspondence number the character image data and background-image data which consist of a dynamic body object based on the result of this data processing, animation image image data, change pattern image data, and sound data. In addition, although not illustrated, DSP mentioned above decides to be contained in CPU66.

[0077] Moreover, CPU66 reads the image data of the change pattern which is the identification information mentioned above, and it controls, or it controls it so that a halt indication of the mutual combination state of the pattern which are two or more identification information is given to predetermined timing in display 32 so that a change indication of the pattern is given in display 32.

[0078] Furthermore, the interface-circuitry group 72 is also connected to the input/output bus 64. Display 32, a loudspeaker 46 (46a, 46b), the discharge motor 28, the solenoid 48, the hold lamp 34, and the ornament lamp 36 are connected to the interface-circuitry group 72, and the interface-circuitry group 72 supplies a driving signal and drive power to it that each of the equipment mentioned above according to the result of data processing in CPU66 should be controlled.

[0079] The screen picture of the display 32 which is a display consists of a production picture as which the discernment picture as which a change pattern is displayed, and a production screen are displayed, and is displayed as one picture by piling up these two pictures by control of CPU66, and compounding. Thus, especially, by making a production picture into a background, the scene which piles up and compounds two or more pictures, for example, a pattern picture and a production picture, and on which a pattern is changed can be directed, and a colorful display gestalt becomes possible at a twist.

[0080] It is for carrying out the opening-and-closing drive of the \*\*\*\* shutter 40

mentioned above, and a solenoid 48 shows the number of times from which the combination of the pattern displayed on display 32 became effective, and the ornament lamp 36 blinks or turns on the hold lamp 34 for it to show a game person that, when it becomes a time of a game being becoming it a great success, and reach. A control section consists of CPUs66 mentioned above, a display consists of display 32, and a game machine consists of pachinko game equipment 10.

[0081] The variable used for below in CPU66 which had started pachinko game equipment 10 and was mentioned above shall be initialized by the predetermined value, and shall carry out regular operation. Moreover, about sound other than the sound which reports a ceiling preliminary announcement, although explanation is omitted, suppose that BGM, a sound effect, voice, etc. are outputted suitably according to a game situation. Drawing 8 is a flow chart which shows the sub routine which detects the game sphere performed in the control circuit 60 mentioned above. In addition, this sub routine is called and performed to predetermined timing from the control program which controls the pachinko game of the pachinko game equipment 10 currently performed beforehand.

[0082] First, it detects whether it is the no by which the game sphere went into the winning-a-prize mouth (Step S11). This winning-a-prize mouth is the general winning-a-prize mouth 50, 54a-54d, and the special winning-a-prize mouths 56a-56d in the example shown in drawing 6 mentioned above, for example. In Step S11, when it judges that the game sphere went into the winning-a-prize mouth, processing which pays out a number of game spheres beforehand defined according to the kind of winning-a-prize mouth is performed (Step S12).

[0083] Next, it judges whether the game sphere went into the starting mouth (Step S13). This starting is the starting mouth 44 in the example shown in drawing 6 mentioned above, for example. In this step S13, when it judges that the game sphere went into the starting mouth, the first adjustable display game mentioned later is performed (Step S14).

[0084] Furthermore, it judges whether the game sphere passed the sphere passage detector (Step S15). This sphere passage detector is the sphere passage detectors 55a and 55b in the example shown in drawing 6 mentioned above, for example. In this step S15, when a sphere passage detector is judged that the game sphere passed, as mentioned above, processing which usually indicates the pattern by change in display 52 is performed (Step S16). In addition, as mentioned above, when are indicated by change and it becomes [ at which the pattern usually stopped ] a predetermined pattern, a game sphere tends to go into the starting mouth 44, and it is made to become it, as the movable pieces 58a and 58b are driven and it will be in an open state about the starting mouth 44.

[0085] Next, the adjustable display game in this invention is concretely explained using a drawing. Drawing 9 is a flow chart which shows the sub routine which performs adjustable display game processing called and performed in Step S14 mentioned above. By calling this sub routine, the fixed screen currently displayed in

display 32 is usually changed to a screen, and an adjustable display game is started. An adjustable display game is a game which imitated the game made in a slot machine here. After displaying two or more patterns which are two or more identification information on display 32 and displaying that the each is changed, When the combination of the pattern when these patterns displaying that it stops one by one to predetermined timing, and stopping all the patterns turns into a predetermined combination It is a game for shifting a pachinko game to a state advantageous to a game person, for example, a great success state, and is the game performed considering this change display and a halt display as one distance.

[0086] For example, as one group of the pattern which consists of "1", "2", —, 12 numbers that consist of "12", these 12 patterns are displayed on display 32 one by one, and it is displayed that the pattern itself changes, displaying that the pattern moves. For example, in display 32, after displaying that "1" of a pattern scrolls down to the upper shell of display 32, it displays that "2" of a pattern is scrolled from a top to the bottom, and it is displayed that "3" of a pattern is continuously scrolled to the bottom of an upper shell similarly. After displaying "from 1" to "12" of a pattern in such a mode, it displays that "1" of a pattern is scrolled again, and the same display is repeated successively. [ of a pattern ]

[0087] By displaying a pattern like a display 32 smell lever, while a pattern is scrolled from "2" to "3" from "1" to "2", a pattern will be displayed to change one by one to "12", and next, "1" will be displayed again. Thus, the mode which displays a pattern that the pattern itself changes one by one is called change display, moving the position of one pattern. Moreover, the mode which is made to stop a certain pattern and is displayed is called halt display.

[0088] In addition, the pattern displayed in case the pattern belonging to one group is displayed on display 32 is good also as not being restricted only to one pattern belonging to a group, and displaying simultaneously plurality, for example, 2-3 patterns. For example, while indicating the pattern "5" by change at display 32, a part or the whole of a pattern "4" is indicated by change under the pattern "5", and it is good above a pattern "5" also as indicating a part or the whole of a pattern "6" by change. In addition, the group of the pattern mentioned above is a concept corresponding to the group of the pattern displayed on one reel used in a slot machine.

[0089] Furthermore, when an adjustable display game is performed in display 32, the pattern belonging to each of two or more groups is displayed. For example, when displaying each of the pattern belonging to three groups on a longitudinal direction, the pattern belonging to one group is displayed on the left-hand side of display 32, the pattern belonging to other groups is displayed in the center of display 32, and the pattern belonging to the remaining groups is displayed on the right-hand side of display 32.

[0090] Thus, by displaying the pattern which is identification information, two or more identification information will be displayed on the display 32 which is a display.

For example, so that only one pattern in the pattern belonging to one group may always be displayed, when indicating by change, one pattern will be displayed on display 32 by three patterns, i.e., left-hand side, one pattern will be displayed in the center, and one pattern will be displayed on right-hand side. moreover — displaying the pattern which the number of the groups at the time of an adjustable display game being performed is not restricted to three, and belongs to two or more groups other than three on display 32 — also carrying out — it is good

[0091] As mentioned above, two or more patterns, i.e., two or more identification information, will be displayed on the display 32 which is a display by displaying a pattern in this way. Furthermore, when we decided to display that it is good also as displaying two or more patterns about the pattern belonging to one group as mentioned above, for example, the two patterns belonging to one group are simultaneously indicated by change and it displays about three groups, a change indication of a total of six patterns will be given at display 32.

[0092] When all the patterns by which it was indicated by change are indicated by halt to predetermined timing after indicating the pattern belonging to two or more groups by change, the combination of these patterns agrees about a predetermined combination, and it shifts to the state where a pachinko game becomes advantageous to a game person noting that an adjustable display game wins great success, when indicated by halt.

[0093] For example, when displaying the pattern belonging to three groups on display 32 When a halt indication of the pattern belonging to one group is given by "7" and a halt indication also of the pattern belonging to other groups and the pattern which it is indicated by halt by "7" and belongs to the remaining groups is given by "7" The combination of a pattern is combination "7"—"7 predetermined". – It agrees in "7", and it shifts to the state where a pachinko game becomes advantageous to a game person noting that an adjustable display game wins great success. It is made easy to open wide the shutter 40 of the winning-a-prize mouth 38 which supplies current to the solenoid 48 mentioned above, and is prepared in the front face of the game board 14, and to go a game sphere into the winning-a-prize mouth 38, when it shifts to the state where it is becoming it a great success, and becomes advantageous to a game person.

[0094] Moreover, when this adjustable display game is performed, the production screen by the background image, the character picture, etc. is also displayed on display 32. In addition, the production screen which will be displayed on display 32 by the time a screen results when an adjustable display game is becoming it a great success after a change indication of the pattern which was mentioned above, and which an adjustable display game is started in display 32, and is displayed on display 32 is given is usually said. Moreover, when the adjustable display game by which the fixed screen mentioned above is performed in display 32 is not performed but only the pachinko game is advancing in pachinko game equipment 10, and/or when the pachinko game is not advancing, the screen displayed on display 32 is said.

[0095] A start of the adjustable display game mentioned above performs internal lottery processing by data processing of CPU66 first (Step S200). It is the processing set beforehand the combination of the pattern when this internal lottery processing indicating by halt all the patterns that belong to two or more groups by which it was indicated by change, and deciding a pattern, and CPU 66 carries out processing with the change display of a pattern, and a halt display so that it may mention later, and a halt indication of the pattern may be given in the combination of the pattern defined by internal lottery processing.

[0096] moreover, when it is determined that CPU66 performs processing which determines whether display a preliminary announcement character picture, and will display a preliminary announcement character picture by the above-mentioned internal lottery processing Furthermore, [ whether the preliminary announcement character picture which displays the preliminary announcement character picture which announces the reliability of reach beforehand, or announces the reliability of great success beforehand is displayed, and ] Or processing which determines whether to display the preliminary announcement character picture which announces beforehand the reliability of the preliminary announcement character picture which announces the reliability of the reliability of reach beforehand, and great success is performed.

[0097] Next, the screen configuration information of the selected background image is generated by RAM70 (Step S201). That is, after the above-mentioned internal lottery processing is performed, according to the result of internal lottery processing, the advance situation of an adjustable display game, etc., the control program which chooses a background image is called and performed from ROM68 by CPU66. Next, the screen configuration information of the background image chosen by CPU66 based on the result by which it might perform is generated by RAM70 by CPU66 at any time. Such a picture is suitably chosen by CPU based on the advance situation of an adjustable display game, and the result of the above-mentioned internal lottery processing.

[0098] Next, the screen configuration information of the character picture which consists of a selected animal object is generated by RAM70 (Step S202). That is, based on the execution result of the above-mentioned control program, the screen configuration information of the character picture chosen by CPU66 is generated by RAM70.

[0099] Movement can be given and displayed on a character picture by controlling so that the head position of a character picture shifts by predetermined movement magnitude with the period (frame span) of the fixed interval for every grade for 1 / 30 seconds at this time, for example, 60 1/seconds. In addition, about the picture which shows a character, it does not always necessarily need to be displayed on display.

[0100] Subsequently, the screen configuration information of the change pattern which is identification information is generated by RAM70 by CPU66 based on the

execution result of the above-mentioned control program (Step S203). The screen configuration information of the picture used as each pattern which constitutes the above-mentioned change pattern It is based on the control program mentioned above. by CPU66 for example, 1 / 60 seconds, and the period (frame span) of the fixed interval for every 30-second grade The change display of a change pattern can be performed by controlling the picture which it is made to shift by predetermined movement magnitude, and serves as each change pattern in the head position of screen configuration information about the picture used as the change pattern which has the same identification information to generate one by one in predetermined sequence.

[0101] Furthermore, since the fluctuation velocity of a change pattern is controllable by adjusting a frame span, the head position of read-out of screen configuration information, etc., in a background image, it is also possible to smooth change of a change pattern and to aim at fusion for a background image and a change pattern according to the tale developed.

[0102] In addition, it is possible to also make ROM68 display that the configuration of this change pattern changes with time during a change display by making two or more image data used as a different configuration memorize, reading from CPU66 at any time, and transmitting to display 32 about the same change pattern.

[0103] Next, it judges whether it is the timing which notifies of the display of a preliminary announcement character picture (Step S204). In addition, a judgment whether it is the timing which notifies of the display of a preliminary announcement character picture can be made by the means shown below. Namely, a production picture just before a preliminary announcement character picture is displayed beforehand When a frame number until this production picture is displayed, and the frame number which measures time etc. and was measured are displayed about (for example, a background image, a character picture), etc., Or when the measured time passes, in Step S204, it can carry out by making ROM68 memorize the control program judged to be the timing which displays a preliminary announcement character picture.

[0104] In addition, when not displaying a preliminary announcement character picture is determined by internal lottery processing in Step S200, in Step S204, it is judged that CPU66 is not the timing which displays a preliminary announcement character picture. In Step S204, when it is judged that it is the timing which displays a preliminary announcement character picture, the preliminary announcement character picture to display is chosen and the screen configuration information of the selected preliminary announcement character picture is generated by RAM70 (Step S205). That is, based on the execution result of the above-mentioned control program, the screen configuration information of the preliminary announcement character picture chosen by CPU66 is generated by RAM70. [0105] Movement can be given and displayed on a preliminary announcement character picture by controlling so that the head position of a preliminary announcement character

picture shifts by predetermined movement magnitude with the period (frame span) of the fixed interval for every grade for 1 / 30 seconds at this time, for example, 60 1/seconds. When it is judged that it is not the timing which displays a preliminary announcement character picture at Step S204, or when processing of Step S205 is performed next, it judges whether it is the timing which reports a ceiling preliminary announcement (Step S206). This judgment can be made by the means shown below.

[0106] That is, the number of accumulation change (the number of accumulation adjustable display games) while the great success state memorized by RAM70 has not occurred is read, and when this number of accumulation change is the predetermined number of times, it can carry out by making ROM68 memorize the control program judged to be the timing which reports a ceiling preliminary announcement.

[0107] At this time, it is desirable to prepare the predetermined number of times which carries out a ceiling preliminary announcement according to the setting data of a ceiling. For example, if a setup of a ceiling considers as 1500 times, when a these number-of-times adjustable display game is performed by what the predetermined number of times is made into 1480 times, 1490 times, and 1495 – 1500 times for, it will be judged by it that it is the timing which reports a ceiling preliminary announcement, and it will be judged that it is not the timing which reports a ceiling preliminary announcement other than it. In the above-mentioned step S206, when it is judged that it is the timing which reports a ceiling preliminary announcement next, the sound data which report a ceiling preliminary announcement are chosen (Step S207). That is, CPU66 chooses and reads the sound data of the above-mentioned selected preliminary announcement character picture from the sound data memorized by ROM68. And a correspondence number is generated from these sound data, and it transmits to a loudspeaker. Consequently, the sound (sound which the effect of a binaural sound makes here) based on the above-mentioned sound data will be outputted by the loudspeaker.

[0108] It is desirable to perform selection of sound data which reports the above-mentioned ceiling preliminary announcement out of two or more sound data in this invention, for example, it is because it can direct how much [ changing output sound for every number of times predetermined / two or more / set up for judgment of the timing which reports the aforementioned ceiling preliminary announcement, and approaching the ceiling or ] the ceiling is approached. Various sound can be used with it being as that it is \*\*\*\* of an animal \*\*\*\* [,, and ]. [ that there is voice an angel etc. is whispering gently "they are already a little patience", whether "whether have borne well", etc. as output sound at this time, for example ] [ that there is voice which is encouraged "to do your best to a slight degree" etc. ] [ simplifying / sound / which be called "BOWAN", "BOWAN, BOWAN", etc. ]

[0109] Moreover, as for the sound which the effect of the binaural sound outputted by the above-mentioned loudspeaker makes, it is desirable that it is the sound which generates a virtual source. For example, it is because the hope about the

whereabouts of a game can be further raised while fully being able to give admiration excitedly to a game person, since sound enables it to approach gradually close to his ears [ of a game person ] or a game person's circumference can be reported to it using more unique and new methods, such as making it sound turn round and round etc.

[0110] In Step S206, when it is judged that it is not the timing which reports a ceiling preliminary announcement, or when processing of Step S207 is performed next, it judges whether it is the timing which indicates the one change pattern by halt (Step S208). That is, it judges whether it is the timing which indicates by halt the pattern which belongs to one group among plurality, for example, three groups.

[0111] When a change pattern is judged to be the timing which indicates by halt, a change pattern picture is chosen by CPU66 in the mode which indicates the one change pattern by halt, and the screen configuration information of this change pattern picture is generated by RAM70 by it (Step S209).

[0112] Subsequently, based on Steps S201-S203 and the screen configuration information generated in S205 and S209, each image data corresponding to the above-mentioned screen configuration information is read from ROM68 by CPU66.

[0113] Then, after considering as the image data displayed on display 32, while it is transmitted to display 32 and each picture is displayed by the priority as which it is displayed in the above-mentioned screen configuration information, and the information about a position etc., a correspondence number is generated from the sound data of the ceiling preliminary announcement sound chosen in Step S207, it is transmitted to a loudspeaker, and sound is outputted by them. (Step S210) .

[0114] Processing of Steps S201-S210 mentioned above is repeatedly performed until it is judged that a halt indication of all the patterns that belong to two or more groups in Step S211 mentioned later was given. Thus, by repeating and performing processing, it can be displayed that the pattern can be indicated by change so that it may scroll in a predetermined mode, and a character picture and a preliminary announcement character picture also carry out predetermined operation.

[0115] After performing processing of Step S210, it judges whether a halt indication of all the patterns belonging to two or more groups was given (Step S211). When it judges that a halt indication of all the patterns belonging to two or more groups is not given, processing is returned to Step S201. On the other hand, when it judges that a halt indication of all the patterns was given, this sub routine is ended.

[0116] With the gestalt of this above-mentioned operation, although it was made to output ceiling preliminary announcement sound in the manipulation routine of an adjustable display game, by this invention, you may prepare the routine to which ceiling preliminary announcement sound is made to output apart from the manipulation routine of an adjustable display game. For example, in the game sphere detection routine shown in drawing 8 [ whether Steps S11 and S13 or the game sphere of S15 went into the winning-a-prize mouth, and ] Whether it went into the starting mouth or when judged as "YES" at the step of either of the steps which

judges whether the sphere passage detector was passed. The aforementioned steps S206 and S207 can be processed, and ceiling preliminary announcement sound can also be outputted from a loudspeaker apart from an adjustable display game based on selected sound data. In addition, when it is judged as "YES" at the above-mentioned steps S11 and S15 and performs, even if it is the case where it results in a ceiling, depending on timing, ceiling preliminary announcement sound may not be reported and an irregular ceiling preliminary announcement can be performed.

[0117] In addition, when the change pattern is not displayed on an identification information picture field, it replaces with the fixed screen mentioned above, and does not matter as a demonstration screen. The above-mentioned demonstration screen is good also as being displayed, after replacing with the above-mentioned fixed screen, always being displayed, displaying the above-mentioned fixed screen and a predetermined period's passing.

[0118] Drawing 10 is a flow chart which shows the sub routine which displays the demonstration screen for replacing with the fixed screen mentioned above and introducing a preliminary announcement character etc. In addition, this sub routine is called and performed to predetermined timing, when the fixed screen is displayed on display 32. First, the screen configuration information of the selected background image is generated by RAM70 (Step S301). That is, the control program which chooses the picture displayed as a demonstration screen is called and performed from ROM68 by CPU66.

[0119] Next, the screen configuration information of the background image chosen by CPU66 based on the result by which it might perform is generated by RAM70 by CPU66 at any time. Next, the screen configuration information of the selected character picture is generated by RAM70 (Step S302). That is, based on the execution result of the above-mentioned control program, the screen configuration information of the character picture chosen by CPU66 is generated by RAM70. At this time, movement can be given and displayed on a character picture by controlling like Step S202 mentioned above.

[0120] In addition, if it is the character picture which shows the same character as the character picture displayed in an adjustable display game as a character picture displayed on a demonstration screen, it will not be limited especially. Moreover, about the picture which shows a character picture, it does not necessarily need to be displayed.

[0121] Next, the screen configuration information of the selected preliminary announcement character picture is generated by RAM70 (Step S303). That is, based on the execution result of the above-mentioned control program, the screen configuration information of the preliminary announcement character picture chosen by CPU66 is generated by RAM70. At this time, movement can be given and displayed on a preliminary announcement character picture by controlling like Step S303 mentioned above. In addition, the preliminary announcement character picture displayed on a demonstration screen will not be especially limited, if it is the

preliminary announcement character picture which shows the same character as the preliminary announcement character picture displayed in an adjustable display game.

[0122] Next, it judges whether it is the timing which outputs the voice of the character shown as a character picture (Step S305). When it is judged that it is the timing which outputs the voice of the above-mentioned character, the sound data made to generate the voice of this character are chosen (Step S306). That is, CPU66 chooses and reads the sound data used since the voice of the above-mentioned character is outputted from the sound data memorized by ROM68. And a correspondence number is generated from these sound data, and it transmits to a loudspeaker. Consequently, the sound based on the above-mentioned sound data will be outputted by the loudspeaker.

[0123] A judgment whether it is the timing which outputs the voice of the above-mentioned character can be made by the means shown below. namely, about the production picture beforehand displayed in case the voice of a character is outputted When a frame number until the above-mentioned production picture is displayed, and the frame number which measures time etc. and was measured are displayed, Or when the measured time is passed, in Step S305, it can carry out by making ROM68 memorize the control program judged to be the timing which outputs the voice of the above-mentioned character.

[0124] In Step S305, when it is judged that it is the timing which outputs the voice of the character shown as a character picture, or when processing of Step S306 is performed, it judges whether it is the timing which outputs the voice of the preliminary announcement character shown as a preliminary announcement character picture (Step S307). When it is judged that it is the timing which outputs the voice of the above-mentioned preliminary announcement character, the sound data made to generate the voice of this preliminary announcement character are chosen (Step S308). That is, CPU66 chooses and reads the sound data used since the voice of the above-mentioned preliminary announcement character is outputted from the sound data memorized by ROM68. And a correspondence number is generated from these sound data, and it transmits to a loudspeaker. Consequently, the sound based on the above-mentioned sound data will be outputted by the loudspeaker.

[0125] In addition, a judgment whether it is the timing which outputs the voice of the above-mentioned preliminary announcement character can be made using the same means as Step S305 mentioned above. In Step S307, when it is judged that it is the timing which outputs the voice of the preliminary announcement character shown as a preliminary announcement character, or when processing of Step S308 is performed next, it judges whether the game sphere went into the starting mouth (Step S309). When it is judged that the game sphere is not contained in a starting mouth, processing is returned to Step S301. In addition, this demonstration screen manipulation routine is good also as performing, time [ the time of post-regularity when the front demonstration screen manipulation routine was performed ], for

example, after passing for 5 minutes.

[0126] On the other hand, when it is judged that the game sphere went into the starting mouth, this sub routine is ended. In addition, Step S309 is processing corresponding to Step S13 of a game sphere detection routine mentioned above. Therefore, in Step S309, when it is judged that the game sphere went into the starting mouth, the adjustable display game manipulation routine mentioned above will be performed.

[0127] Although the case where ROM68 and RAM70 of pachinko game equipment 10 memorized the program which controls a pachinko game, the program for detecting the game sphere shown in drawing 8 , the program which performs the adjustable display game shown in drawing 9 in the example mentioned above was shown It is good also as a server and a terminal having data used by the programs mentioned above when it considered as the composition which can perform a pachinko game when an operator operates the terminal connected to the server possible [ communication ], or these programs.

[0128] Thus, when it considers as the composition which consists of a server and a terminal, the server memorizes beforehand the program which controls a pachinko game, the program for detecting the game sphere shown in drawing 8 , the program which performs the adjustable display game shown in drawing 9 , and transmits these programs to a terminal to predetermined timing.

[0129] On the other hand, a terminal once memorizes these transmitted programs and advances a pachinko game by beginning to read the program which memorized suitably and performing it. Moreover, it is good also as performing the program which controls a pachinko game, the program for detecting the game sphere shown in drawing 8 , the program which performs the adjustable display game shown in drawing 9 by the server side, and transmitting to a terminal by making into a control signal or control information the instruction generated according to the execution result. In this case, a terminal chooses the picture for performing a pachinko game according to the control signal and control information which were transmitted, generates it, or displays the picture on a display.

[0130] Drawing 11 is the front view showing an example of the terminal when considering as composition which was mentioned above. In the example shown in drawing 11 , a terminal 100 is a general-purpose personal computer, and a game person's alter operation is inputted from the input unit 102 connected to the terminal 100, for example, a keyboard. Moreover, the control section 130 of a terminal 100 consists of CPU108, ROM110, and RAM112 grade which are mentioned later, and the program which controls a pachinko game in this control section 130, and the program which controls an adjustable display game are performed.

[0131] This control section 130 also has the communication interface circuit 120 (not shown), and a control section 130 performs communication with the server later mentioned through a communication interface circuit 120, based on the control signal or control information transmitted from a server, a program, and data, a

pachinko game is controlled or it controls an adjustable display game. Moreover, the loudspeaker 118 is connected to the control section 130, and it is possible to output the sound which the effect of a binaural sound makes by the loudspeaker 118.

[0132] Furthermore, the game machine picture which imitated pachinko game equipment as shown in the display 116 connected to the terminal 100 at drawing 11 is displayed, and a pachinko game is performed on this game machine picture. The display 132 by which the adjustable display game mentioned above on this game machine picture is performed is displayed as a picture. In this display 132, the picture of the pattern which is the identification information which was mentioned above is displayed. Moreover, when the sub routine shown in drawing 9 and a sub routine as shown in drawing 18 , drawing 20 , or drawing 25 are performed in a control section 130 so that it may mention later, the sound which the effect of the binaural sound outputted from a loudspeaker 118 makes can report approaching, or it has resulted in the ceiling.

[0133] Drawing 12 is the front view showing other examples of a terminal. In addition, the same sign was given to the component shown in drawing 11 , and the corresponding component. The example of drawing 12 shows the carried type terminal 140, and a game person's alter operation is inputted from the input unit 102 prepared in the terminal 140, for example, a switch. Moreover, the control section 130 (not shown) is formed in the interior of a terminal 140, it consists of CPU108, ROM110, and RAM112 grade which are mentioned later, and the program which controls a pachinko game and an adjustable display game in this control section 130 is performed. Moreover, the loudspeaker 118 is connected to the control section 130, and it is possible to output the sound which the effect of a binaural sound makes by the loudspeaker 118.

[0134] Moreover, this control section 130 also has a communication interface circuit 120 (not shown), and a control section 130 performs communication with the server later mentioned through a communication interface circuit 120, and it controls a pachinko game and an adjustable display game based on the control signal or control information transmitted from a server, a program, and data.

[0135] Furthermore, as the display 116 prepared in the upper surface of a terminal 140 consists of a liquid crystal display panel and it was shown in drawing 12 , the game machine picture which imitated pachinko game equipment is displayed, and a pachinko game is performed on this game machine picture. The display 132 by which the adjustable display game mentioned above on this game machine picture is performed is displayed as a picture. In this display 132, the picture of the pattern which is the identification information which was mentioned above is displayed.

[0136] Moreover, when the sub routine shown in drawing 9 and a sub routine as shown in drawing 18 , drawing 20 , or drawing 25 are performed in a control section 130, the sound which the effect of the binaural sound outputted from a loudspeaker 118 makes can report approaching, or the game has resulted in the ceiling.

[0137] In the terminal 100 shown in drawing 11 as mentioned above, display 116

serves as another object and consists of control sections 130, various kinds of control signal or control information which were transmitted from the server, such as a display-control signal, are supplied to the control section 130 of a terminal 100, and a control section 130 supplies the status signal which generated and generated the status signal based on the supplied control signal or control information to display 116.

[0138] On the other hand, the terminal 140 shown in drawing 12 is constituted united with display 116, and the control signal or control information which were transmitted from the server, such as a display-control signal, are supplied to the control section 130 of a terminal 140, a control section 130 generates a status signal based on the supplied control signal or control information, and it supplies the generated status signal to display 116. The example shown below is applicable even if it is the composition which was united even if it was the composition that the control section and display of a terminal became another object.

[0139] Drawing 13 is the block diagram showing the terminal 100 mentioned above or the composition of 140 (the terminal unit for pachinko games is called hereafter). Moreover, drawing 14 is the block diagram showing the composition of the server 80 which is connected with this terminal unit for pachinko games through a communication line, and supplies various control signals or control information, and data to the terminal unit for pachinko games. In addition, in the terminal unit for pachinko games shown in drawing 13, the same sign was given to the component shown in drawing 7, and the corresponding component.

[0140] The input unit 102, for example, the keyboard, and switch for inputting operation of a game person are connected to the interface circuitry 104 of the terminal unit 100 for pachinko games, and the interface circuitry 104 is connected to the input/output bus 106. It is made through this input/output bus 106 as [ input / output and / a data signal or an address signal / by the central-process circuit (CPU is called hereafter) 108 ]. ROM (read-only memory)110 and RAM (random access memory)112 are connected to the input/output bus 106. ROM110 and RAM112 memorize a program which is mentioned later, the image data for displaying on display 116, the sound data outputted by the loudspeaker 118. Moreover, the above-mentioned sound data contain the sound data made to generate the sound which the effect of a binaural sound makes.

[0141] Moreover, the interface-circuitry group 114 is also connected to the input/output bus 106. Display 116 and the loudspeaker 118 are connected to the interface-circuitry group 114, and the interface-circuitry group 114 supplies a status signal and a correspondence number to each of display 116 and a loudspeaker 118 according to the result of data processing in CPU108.

[0142] Furthermore, the communication interface circuit 120 is also connected to the input/output bus 106. This communication interface circuit 120 is for carrying out communication with the server 80 later mentioned through communication lines, such as a dial-up line network and a Local Area Network (LAN).

[0143] On the other hand, as shown in drawing 14 , shell composition of the server 80 is carried out with a hard disk drive 88, CPU82, ROM84 and RAM86, and the communication interface circuit 90. A hard disk drive 88 memorizes the program for receiving the program for carrying out communication with the terminal unit for pachinko games, and the information emitted from the terminal unit for pachinko games, the program which controls a pachinko game, and the program which controls an adjustable display game. A communication interface circuit 90 is for carrying out the terminal unit 100 for pachinko games mentioned above through communication lines, such as a dial-up line network and a Local Area Network (LAN), and communication with 140.

[0144] When it considers as composition which was mentioned above, the game machine picture which imitated the pachinko game equipment shown in drawing 11 or drawing 12 is displayed on the display 116 of the terminal unit 100 for pachinko games, and the picture which shows the display 132 for performing the game face of a board, a hold lamp, an ornament lamp, and an adjustable display game and the equipment of the display 152 grade for usually displaying a pattern, and the picture which shows a game sphere are displayed on display 116. In the display 132 for performing this adjustable display game, when an adjustable display game is performed, the picture of the pattern which is identification information is displayed.

[0145] Hereafter, the sub routine by which executive operation is carried out in each of the terminal unit for pachinko games and a server is shown in drawing 15 – drawing 25 . The terminal unit 100 for pachinko games or 140, and a server 80 shall be started beforehand below, and shall carry out regular operation. Moreover, the variable used in CPU108 and CPU82 which were mentioned above shall be initialized by the predetermined value. Furthermore, each of equipments, such as a winning-a-prize mouth, a starting mouth, and a sphere passage detector, or a game sphere shall be displayed as a picture in display 116. In addition, about sound other than the sound which notifies of the display of a preliminary announcement character picture, although explanation is omitted, suppose that BGM, a sound effect, voice, etc. are outputted suitably according to a game situation.

[0146] Drawing 15 and drawing 16 are predetermined timing when the terminal unit 100 for pachinko games or 140 is started. A server 80 supplies various kinds of programs memorized by the hard disk drive 88 grade of a server 80 to the terminal unit 100 for pachinko games, or 140. When performing the program supplied in the terminal unit 100 for pachinko games, or 140, it is the flow chart which shows the terminal unit 100 for pachinko games or 140, and the sub routine by which executive operation is carried out in each of a server 80. Drawing 15 is a sub routine performed in the terminal unit 100 for pachinko games, or 140, and is called and performed from a main routine to predetermined timing. In addition, this main routine shall include beforehand the program which is needed in case communication with the servers 80, such as a program for judging whether communication with a server 80 is possible, is carried out.

[0147] In case first a pachinko game is gone on in the program for performing a pachinko game, and the terminal unit for pachinko games from a server 80, required image data and the sound data made to generate the sound outputted by the loudspeaker 118 are downloaded (Step S31).

[0148] Subsequently, when a game person operates an input unit 102, a pachinko game is started and executive operation of the game program is carried out (Step S32). It is for displaying pictures of the game machine picture, the background image, and the change pattern which required image data imitated pachinko game equipment and, such as a picture and a character picture, on display 116 including the game program by which this game program controls a pachinko game, and the program for performing the adjustable display game shown in drawing 7 mentioned above.

[0149] Furthermore, the sound data made to generate the sound outputted by the loudspeaker 118 are sound data used as BGM, a sound effect, voice, etc., and contain the sound data made to generate the sound which the effect of a binaural sound makes. Moreover, when a game program is performed in the terminal unit 100 for pachinko games, or 140, it detects that the game person operated the input unit 102. When it detects that the game person operated the input unit 102, as mentioned above, the display 132 which the game machine picture which imitated pachinko game equipment is displayed on the terminal unit 100 for pachinko games or the display 116 of 140, and displays an adjustable display game on this game machine picture is also displayed. Furthermore, when a game person operates an input unit 102 that a game sphere should be discharged, the picture of the game sphere which can be checked by looking so that a game sphere may move in a game face-of-a-board top is displayed on a game machine picture.

[0150] Next, it judges whether the game sphere went into the winning-a-prize mouth (Step S33). This winning-a-prize mouth is the general winning-a-prize mouth 50 shown in drawing 6 mentioned above, 54a-54d, and a picture portion specially corresponding to the winning-a-prize mouths 56a-56d. When it judges that the game sphere went into the winning-a-prize mouth, processing which pays out the game sphere of the number according to the kind of winning-a-prize mouth is performed (Step S34). In addition, processing of this step S34 is good in the terminal unit 100 for pachinko games, or 140 also as memorizing the number of game spheres to RAM112 also as displaying the number of game spheres on one position of the display 116.

[0151] Next, it judges whether the game sphere went into the starting mouth (Step S35). This starting is a picture portion corresponding to the starting mouth 44 shown in drawing 6 mentioned above. In this step S35, when it judges that the game sphere went into the starting mouth, the sub routine shown in drawing 9 mentioned above and the same adjustable display game manipulation routine are called and performed (Step S36). In addition, when an adjustable display game manipulation routine is performed, in the display 132 shown in drawing 11 and drawing 12 , the picture and

character picture of a background image or a change pattern are displayed.

[0152] Furthermore, it can report now approaching with the sound which the effect of the binaural sound outputted from a loudspeaker 118 makes, or it has resulted in the ceiling by performing the adjustable display game manipulation routine shown in drawing 9 .

[0153] Furthermore, it judges whether the game sphere passed the sphere passage detector (Step S37). This sphere passage detector is a picture portion corresponding to the sphere passage detectors 55a and 55b shown in drawing 6 mentioned above. In this step S37, when a sphere passage detector is judged that the game sphere passed, processing which usually indicates the pattern by change in display 52 is performed (Step S38). In addition, as mentioned above, when are indicated by change and it becomes [ at which the pattern usually stopped ] a predetermined pattern, the picture which can be checked by looking so that the movable pieces 58a and 58b may be driven and the starting mouth 44 may be in an open state is displayed, and processing which a game sphere tends to go into the starting mouth 44, and becomes to it is performed.

[0154] Next, it judges whether the game was completed or not (Step S39). Judgment whether the game was completed or not judges that the game ended them when only the time of detecting having operated the input unit 102 and the number with which the game sphere was defined beforehand judged having been discharged by the game face of a board, in order that a game person may end a game. When it judges that the game is not completed, processing is returned to Step S32 mentioned above.

[0155] On the other hand, when it judges that the game was completed, the game result which shows the number of the discharged game spheres, the number of the repaid game spheres, etc., and the game end information which shows that the game was completed are transmitted to a server 80 (Step S40), and this sub routine is ended. Drawing 16 is a flow chart which shows the sub routine performed in a server 80 corresponding to the terminal side manipulation routine performed in the terminal unit 100 for pachinko games shown in drawing 15 , or 140.

[0156] It judges whether first, the terminal unit 100 for pachinko games or 140 is started, and it is in the state which can communicate (Step S51). When it is judged that the terminal unit 100 for pachinko games or 140 is not started, processing is returned to Step S51.

[0157] On the other hand, when it judges that the terminal unit 100 for pachinko games or 140 is started, various kinds of program and various kinds of image data, sound data, etc. are transmitted to the terminal unit 100 for pachinko games, or 140 (Step S52). Processing of this step S52 is equivalent to processing of Step S31 of drawing 15 mentioned above. As mentioned above, it is for displaying the picture of the game machine picture, the background image, and the change pattern which various kinds of image data imitated pachinko game equipment and, a character picture, etc. on display 116 including the game program by which the program

transmitted to the terminal unit 100 for pachinko games or 140 in Step S52 controls a pachinko game, and the program for performing the adjustable display game shown in drawing 9 mentioned above.

[0158] Furthermore, the sound data made to generate the sound outputted by the loudspeaker 118 are sound data used as BGM, a sound effect, voice, etc., and contain the sound data made to generate the sound which the effect of a binaural sound makes.

[0159] Next, it judges whether the information which shows the purport which the game result and the game ended was transmitted from the terminal unit 100 for pachinko games, or 140 (Step S53). This step S53 is equivalent to Step S40 of drawing 15 mentioned above. In Step S53, when it judges that neither a game result nor game end information is transmitted from the terminal unit 100 for pachinko games, or 140, processing is returned to Step S53. In addition, in the terminal unit 100 for pachinko games, or 140, while processing of Steps S32-S39 shown in drawing 15 is performed, processing of Step S53 which set server 80 and was mentioned above is performed repeatedly.

[0160] On the other hand, when it is judged in Step S53 that a game result and game end information were transmitted from the terminal unit 100 for pachinko games or 140, a game result and game end information are received (Step S54), and this sub routine is ended. Since the program and various kinds of image data for performing a pachinko game are always transmitted from a server 80 before a game is started in the terminal unit 100 for pachinko games, or 140 when it considers as composition which was mentioned above, when a program and image data are updated in a server 80, the game person can always enjoy the newest game.

[0161] Moreover, when it considers as such composition, in the terminal unit 100 for pachinko games which is a terminal, or 140, the program which reports approaching or it has resulted in the ceiling with the sound which the effect of the binaural sound outputted from a loudspeaker 118 makes is stored in the hard disk drive 88 grade of a server 80.

[0162] By considering as such composition, the sound which the effect of a binaural sound makes can report using unique and new methods — close to his ears [ of for example, a game person ] reports. Consequently, while being able to give admiration excitedly to a game person, the hope about the whereabouts of a game and the degree of excitement can be raised.

[0163] Moreover, since the sound which the effect of a binaural sound makes reports, a game person can recognize a ceiling preliminary announcement, without paying attention special to a display. Therefore, a game person can enjoy [ a game person ] a game in comfort. Next, the terminal unit 100 for pachinko games or ROM110 of 140 is made to memorize beforehand the program for controlling a pachinko game, and the program for performing an adjustable display game. When it considers as the composition which transmits suitably the image data and sound data of the various kinds which are alike, therefore are needed with which a

pachinko game advances from a server 80, the terminal unit 100 for pachinko games or 140, and the sub routine performed in a server 80 are shown in drawing 17 , drawing 18 , and drawing 19 .

[0164] Drawing 17 is a sub routine performed in the terminal unit 100 for pachinko games, or 140, in the following explanation, to predetermined timing, shall be read from ROM110 and shall be performed from the main routine. In addition, this main routine shall include beforehand the program which is needed in case communication with the servers 80, such as a program for judging whether communication with a server 80 is possible, is carried out. Moreover, except for the flow chart and Step S31 which were shown in drawing 15 , the flow chart shown in drawing 17 was the same, and gave the same sign to the step which carries out same processing.

[0165] First, a pachinko game is started by operation of a game person and executive operation of the game program is carried out (Step S32). This game program is for displaying a picture, a character picture, etc. of a game machine picture, a background image, or a change pattern which imitated pachinko game equipment on display 116 including the game program which controls a pachinko game, and the program for performing the adjustable display game mentioned later, or outputting sound by the loudspeaker 118.

[0166] Moreover, when a game program is performed in the terminal unit 100 for pachinko games, or 140, it detects that the game person operated the input unit 102. When it detects that the game person operated the input unit 102, as mentioned above, the display 132 which the game machine picture which imitated pachinko game equipment is displayed on the terminal unit 100 for pachinko games or the display 116 of 140, and displays an adjustable display game on this game machine picture is also displayed.

[0167] Furthermore, when a game person operates an input unit 102 that a game sphere should be discharged, the picture of the game sphere which can be checked by looking so that a game sphere may move in a game face-of-a-board top is displayed on a game machine picture. Next, it judges whether the game sphere went into the winning-a-prize mouth (Step S33). This winning-a-prize mouth is the general winning-a-prize mouth 50 shown in drawing 6 mentioned above, 54a-54d, and a picture portion specially corresponding to the winning-a-prize mouths 56a-56d.

[0168] When it judges that the game sphere went into the winning-a-prize mouth, processing which pays out the game sphere of the number according to the kind of winning-a-prize mouth is performed (Step S34). In addition, processing of this step S34 is good in the terminal unit 100 for pachinko games, or 140 also as memorizing the number of game spheres to RAM112 also as displaying the number of game spheres on the position of somewhere in display 116.

[0169] Next, it judges whether the game sphere went into the starting mouth (Step S35). This starting mouth is a picture portion corresponding to the starting mouth 44 shown in drawing 6 mentioned above. In this step S35, when it judges that the game

sphere went into the starting mouth, the adjustable display game manipulation routine mentioned later is called and performed (Step S36). In addition, when an adjustable display game manipulation routine is performed in this case, the sound which the effect of the binaural sound outputted from a loudspeaker 118 makes can report approaching, or the game has resulted in the ceiling.

[0170] Furthermore, it judges whether the game sphere passed the sphere passage detector (Step S37). This sphere passage detector is a picture portion corresponding to the sphere passage detectors 55a and 55b shown in drawing 6 mentioned above. In this step S37, when a sphere passage detector is judged that the game sphere passed, processing which usually indicates the pattern by change in display 52 is performed (Step S38). In addition, as mentioned above, when are indicated by change and it becomes [ at which the pattern usually stopped ] a predetermined pattern, the movable pieces 58a and 58b are driven, and the picture which can check the starting mouth 44 by looking so that it may be in an open state is displayed, and a game sphere tends to go into the starting mouth 44, and it is made to become it.

[0171] Next, it judges whether the game was completed or not (Step S39). Judgment whether the game was completed or not judges that the game ended them when only the time of detecting that the game person operated the input unit 102 that a game should be ended and the number with which the game sphere was defined beforehand judged having been discharged by the game face of a board. When it judges that the game is not completed, processing is returned to Step S32 mentioned above.

[0172] On the other hand, when it judges that the game was completed, the game result which shows the number of the discharged game spheres, the number of the repaid game spheres, etc., and the game end information which shows that the game was completed are transmitted to a server 80 (Step S40), and this sub routine is ended. Drawing 18 is a flow chart which shows the sub routine which processes the adjustable display game called and performed in Step S36 mentioned above. In addition, the same sign was given to the step which carries out the same processing as the step of the flow chart shown in drawing 9 to the flow chart shown in drawing 18 .

[0173] The information which shows the purport by which first this sub routine was called and the execution start of the adjustable display game was carried out is transmitted to a server 80 (Step S61). Next, the sound data made to generate the image data used as the picture of the change pattern which is the identification information picture needed in an adjustable display game, a background image, a character picture, and a preliminary announcement character picture, BGM, a sound effect, and voice, a control program, etc. are received from a server 80 (Step S62).

[0174] Subsequently, internal lottery processing by data processing of the terminal unit 100 for pachinko games or CPU108 of 140 is performed (Step S200). It is the processing set beforehand the combination of the pattern when this internal lottery

processing indicating by halt all the patterns that belong to two or more groups by which it is indicated by change, and deciding a pattern, and CPU 108 carries out processing with the change display of a pattern, and a halt display so that it may mention later, and a halt indication of the pattern may be given in a display 132 in the combination of the pattern defined by internal lottery processing.

[0175] Subsequently, while the above-mentioned control program is performed and a background image is chosen by CPU108 based on the result, the screen configuration information of a background image is generated (Step S201), while a character picture is chosen, the screen configuration information of a character picture is generated (Step S202), and the screen configuration information of the change pattern which is identification information is generated (Step S203).

[0176] Next, when it judges whether it is the timing which displays a preliminary announcement character picture (Step S204) and it is judged that it is the timing which displays the above-mentioned preliminary announcement character picture, a preliminary announcement character picture is chosen by CPU108, and the screen configuration information of the selected preliminary announcement character picture is generated by RAM112 (Step S205).

[0177] When it is judged on the other hand that it is not the timing which displays a preliminary announcement character picture in Step S204, Or it judges whether when processing of Step S205 is performed next, it is the timing which reports a ceiling preliminary announcement (Step S206). When it is judged that it is the timing which reports a ceiling preliminary announcement, the sound data made to generate the sound which the effect of the binaural sound for CPU108 reporting a ceiling preliminary announcement makes are chosen (Step S207).

[0178] In Step S206, when it is judged that it is not the timing which reports a ceiling preliminary announcement, or when processing of Step S207 is performed next, it judges whether it is the timing which indicates the one change pattern by halt (Step S208). When a change pattern is judged to be the timing which indicates by halt, a change pattern picture is chosen by CPU108 in the mode which indicates the one change pattern by halt, and the screen configuration information of this change pattern picture is generated by RAM112 by it (Step S209). Subsequently, based on the generated screen configuration information, a picture is displayed on a display 132 (Step S210).

[0179] Processing of Steps S201-S210 mentioned above is repeatedly performed until it is judged that a halt indication of all the patterns that belong to two or more groups in Step S211 mentioned later was given. Thus, by repeating and performing processing, it can be displayed that the pattern can be indicated by change so that it may scroll in a predetermined mode, and a character picture and a preliminary announcement character picture also carry out predetermined operation. After performing processing of Step S210, it judges whether a halt indication of all the patterns belonging to two or more groups was given (Step S211).

[0180] When it judges that a halt indication of all the patterns belonging to two or

more groups is not given, processing is returned to Step S201. On the other hand, when it judges that a halt indication of all the patterns was given, information is transmitted to a server 80 as a result of the information which shows the purport which the adjustable display game ended, and an adjustable display game (Step S64), and this sub routine is ended. Drawing 19 is a flow chart which shows the sub routine performed in a server 80 corresponding to the terminal side manipulation routine performed in the terminal unit 100 for \*\*\*\* pachinko games shown in drawing 18 , or 140. The server 80 shall be started beforehand, and the sub routine shown in drawing 19 shall be called and performed from the main routine currently performed beforehand.

[0181] It judges whether the information which first shows the purport by which the adjustable display game was started in the terminal unit 100 for pachinko games or 140 was received (Step S71). When it judges that the information which shows the purport by which the adjustable display game was started is not received, this sub routine is ended immediately.

[0182] When it judges that the information which, on the other hand, shows the purport by which the adjustable display game was started was received, the picture, background image and character picture of the change pattern which is the identification information picture needed in an adjustable display game, the sound data made to generate the image data used as a preliminary announcement character picture and BGM, a sound effect, and voice, a control program, etc. are transmitted to the terminal unit 100 for pachinko games, or 140 (Step S72). This step S72 corresponds to processing of Step S62 shown in drawing 18 mentioned above.

[0183] Next, it judges whether the information which shows the purport which ended the adjustable display game was received (Step S75). Processing of this step S75 is processing corresponding to processing of Step S64 of drawing 18 mentioned above. In Step S75, when it judges that the information which shows the purport which ended the adjustable display game is not received, processing is returned to Step S75. When it judges that the information which, on the other hand, shows the purport which ended the adjustable display game was received, this sub routine is ended.

[0184] In the terminal unit 100 for pachinko games which is a terminal when it considers as the composition mentioned above, or 140 So that it may report approaching with the sound which the effect of the binaural sound outputted from a loudspeaker 118 makes or the game has resulted in the ceiling The picture, background image, and character picture of the change pattern which is an identification information picture, The image data used as a preliminary announcement character picture, the sound data made to generate the sound which the effect of a binaural sound makes, And a server 80 transmits a control program etc. to the terminal unit 100 for pachinko games, or 140, and a server 80 controls the terminal unit 100 for pachinko games which is a terminal, or 140.

[0185] By considering as such composition, the sound which the effect of a binaural sound makes can report approaching, or the game has resulted in the ceiling using unique and new methods -- close to his ears [ of for example, a game person ] reports. Consequently, while being able to give admiration excitedly to a game person, the hope about the whereabouts of a game and the degree of excitement can be raised.

[0186] Moreover, since the sound which the effect of a binaural sound makes reports, a game person can recognize a ceiling preliminary announcement, without paying attention special to a display. Therefore, a game person can enjoy [ a game person ] a game in comfort.

[0187] Moreover, when the picture of a change pattern, a background image, a character picture, its method of presentation, etc. are updated in a server 80, image data, a control program, etc. with the terminal unit 100 for pachinko games or 140 will be transmitted from a server 80. [ always new ] Therefore, the game person can enjoy the newest production screen in the terminal unit 100 for pachinko games, or 140.

[0188] Furthermore, only the game program which controls a pachinko game, and the program for performing an adjustable display game are transmitted from a server. The data of the picture of a change pattern, a background image, and a character picture The terminal unit 100 for pachinko games or ROM110 of 140 memorizes beforehand. When it considers as the composition which reads needed image data from ROM110 suitably, the terminal unit 100 for pachinko games or 140, and the sub routine performed in a server 80 are shown in drawing 20 and drawing 21 .

[0189] Drawing 20 is a sub routine performed in the terminal unit 100 for pachinko games, or 140, when it considers as the composition mentioned above. In addition, in Step S36 of this drawing 17 , the sub routine which the terminal unit 100 for pachinko games or 140 is beforehand started, the sub routine shown in drawing 17 mentioned above is read from ROM110, is performed from a main routine to predetermined timing, and is shown in drawing 20 shall be read from ROM110, and shall be performed. Moreover, in the sub routine shown in drawing 20 , it attached at the step which performs processing of a sub routine shown in drawing 18 , and same processing, and the same sign was attached.

[0190] First, the terminal unit 100 for pachinko games or 140 transmits the information which shows the purport by which the adjustable display game was started to a server 80 (Step S61). Subsequently, control programs, such as a game program which controls a pachinko game, and a program for performing an adjustable display game, are received from a server 80, and the received control program is performed (Step S81).

[0191] Subsequently, internal lottery processing by data processing of the terminal unit 100 for pachinko games or CPU108 of 140 is performed (Step S200). It is the processing set beforehand the combination of the pattern when this internal lottery processing indicating by halt all the patterns that belong to two or more groups by

which it is indicated by change, and deciding a pattern, and CPU 108 carries out processing with the change display of a pattern, and a halt display so that it may mention later, and a halt indication of the pattern may be given in a display 132 in the combination of the pattern defined by internal lottery processing.

[0192] Subsequently, while the above-mentioned control program is performed and a background image is chosen by CPU108 based on the result, the screen configuration information of a background image is generated (Step S201), while a character picture is chosen, the screen configuration information of a character picture is generated (Step S202), and the screen configuration information of the change pattern which is identification information is generated (Step S203).

[0193] Next, when it judges whether it is the timing which displays a preliminary announcement character picture (Step S204) and it is judged that it is the timing which displays the above-mentioned preliminary announcement character picture, a preliminary announcement character picture is chosen by CPU108, and the screen configuration information of the selected preliminary announcement character picture is generated by RAM112 (Step S205).

[0194] When it is judged on the other hand that it is not the timing which displays a preliminary announcement character picture in Step S204, Or it judges whether when processing of Step S205 is performed next, it is the timing which reports a ceiling preliminary announcement (Step S206). When it is judged that it is the timing which reports a ceiling preliminary announcement, the sound data made to generate the sound which the effect of the binaural sound for CPU108 reporting a ceiling preliminary announcement makes are chosen (Step S207).

[0195] In Step S206, when it is judged that it is not the timing which reports a ceiling preliminary announcement, or when processing of Step S207 is performed next, it judges whether it is the timing which indicates the one change pattern by halt (Step S208). When a change pattern is judged to be the timing which indicates by halt, a change pattern picture is chosen by CPU108 in the mode which indicates the one change pattern by halt, and the screen configuration information of this change pattern picture is generated by RAM112 by it (Step S209). Subsequently, based on the generated screen configuration information, a picture is displayed on a display 132 (Step S210).

[0196] Processing of Steps S201-S210 mentioned above is repeatedly performed until it is judged that a halt indication of all the patterns that belong to two or more groups in Step S211 mentioned later was given. Thus, by repeating and performing processing, it can be displayed that the pattern can be indicated by change so that it may scroll in a predetermined mode, and a character picture and a preliminary announcement character picture also carry out predetermined operation. After performing processing of Step S210, it judges whether a halt indication of all the patterns belonging to two or more groups was given (Step S211).

[0197] When it judges that a halt indication of all the patterns belonging to two or more groups is not given, processing is returned to Step S201. On the other hand,

when it judges that a halt indication of all the patterns was given, information is transmitted to a server 80 as a result of the information which shows the purport which the adjustable display game ended, and an adjustable display game (Step S64), and this sub routine is ended.

[0198] Drawing 21 is a sub routine performed in a server 80 corresponding to the adjustable display game manipulation routine performed in the terminal unit 100 for pachinko games shown in drawing 20 , or 140. The server 80 shall be started beforehand, and the sub routine shown in drawing 21 shall be called and performed from the main routine currently performed beforehand. In addition, in the sub routine shown in drawing 21 , the same sign was attached about the step which performs processing of a sub routine shown in drawing 19 , and same processing. It judges whether the information which first shows the purport by which the adjustable display game was started in the terminal unit 100 for pachinko games or 140 was received (Step S71). Processing of this step S71 is processing corresponding to Step S61 shown in drawing 20 mentioned above. When it judges that the information which shows the purport by which the adjustable display game was started is not received, this sub routine is ended immediately.

[0199] When it judges that the information which, on the other hand, shows the purport by which the adjustable display game was started was received, control programs, such as a game program which controls a pachinko game, and a program for performing an adjustable display game, are transmitted to the terminal unit 100 for pachinko games, or 140 (Step S91). This step S91 corresponds to processing of Step S81 shown in drawing 22 mentioned above.

[0200] Next, it judges whether the information which shows the purport which ended the adjustable display game was received (Step S75). Processing of this step S75 is processing corresponding to processing of Step S64 of drawing 20 mentioned above. In Step S75, when it judges that the information which shows the purport which ended the adjustable display game is not received, processing is returned to Step S75. When it judges that the information which, on the other hand, shows the purport which ended the adjustable display game was received, this sub routine is ended.

[0201] When it considers as composition which was mentioned above, in the terminal unit 100 for pachinko games which is a terminal, or 140, the program which reports approaching or the game has resulted in the ceiling with the sound which the effect of the binaural sound outputted from a loudspeaker 118 makes is memorized by the hard disk drive 88 grade of a server 80.

[0202] By considering as such composition, the sound which the effect of a binaural sound makes can report approaching, or the game has resulted in the ceiling using unique and new methods — close to his ears [ of for example, a game person ] reports. Consequently, while being able to give admiration excitedly to a game person, the hope about the whereabouts of a game and the degree of excitement can be raised.

[0203] Moreover, since the sound which the effect of a binaural sound makes reports, a game person can recognize a ceiling preliminary announcement, without paying attention special to a display. Therefore, a game person can enjoy [ a game person ] a game in comfort. Moreover, since the control program for performing an adjustable display game is always downloaded when an adjustable display game is started, although a game person does not need to download about the data of the picture of a change pattern, a background image, and a character picture while being able to enjoy the newest adjustable display game therefore, he can display the production picture promptly in the terminal unit 100 for pachinko games, or the display 116 of 140.

[0204] Next, a server memorizes programs, such as a program for controlling a pachinko game, and a program for performing an adjustable display game, and the case where the terminal unit 100 for pachinko games or ROM110 of 140 memorizes the image data which a pachinko game and an adjustable display game need is shown below.

[0205] When it considers as such composition, a server 80 performs advance of a pachinko game, and the terminal unit 100 for pachinko games or 140 chooses a picture according to the control signal or control information transmitted according to advance of a pachinko game performed in the server 80, and displays the selected picture on display 116.

[0206] When it considers as such composition, the sub routine performed in the terminal unit 100 for pachinko games or 140, and a server 80 is shown in drawing 22 , drawing 23 , drawing 24 , and drawing 25 . Drawing 22 is a flow chart which shows the sub routine performed in the terminal unit 100 for pachinko games, or 140, the main routine which is not illustrated in the following explanation when the terminal unit 100 for pachinko games or 140 is started is performed, and after checking that it is in the state in which communication with a server 80 is possible in this main routine, this sub routine shall be called and performed.

[0207] First, the image data and sound data which were transmitted from the server 80 are received (Step S101). The image data in this case is image data not only containing the thing about the adjustable display game mentioned later but the thing about pachinko games, such as the game board and a game sphere. Moreover, the above-mentioned sound data are sound data used as BGM, a sound effect, voice, etc., and contain the sound data made to generate the sound which the effect of a binaural sound makes.

[0208] In addition, when it considers as the composition these image data and sound data are beforehand remembered to be by the terminal unit 100 for pachinko games, or ROM110 of 140, it is good also as excluding processing of Step S101.

[0209] Next, it judges whether the game person operated the input unit 102 (Step S102). When it judges that the game person operated the input unit 102, the operation information according to operation of a game person is transmitted to a server 80 (Step S103).

[0210] When it judges that the game person is not operating the input unit 102 after performing processing of Step S103 or, it judges whether instruction information was emitted from the server 80 (Step S104). When it judges that instruction information was emitted from the server 80, instruction information is received and it judges whether the instruction information is end instruction information (Step S105). When it judges that instruction information is not end instruction information, the picture according to the received instruction information is chosen, and the selected picture is displayed on display 116 (Step S106). Processing is returned to Step S102 mentioned above after this processing. Moreover, in Step S104, when it judges that instruction information is not emitted from a server 80, processing is returned to Step S102 mentioned above.

[0211] In Step S105 mentioned above, when it judges that the received instruction information is end instruction information, this sub routine is ended. The instruction information received in Step S104 mentioned above They are information, such as screen configuration information generated in Steps S122, S124, S126, S128, S130, S132, and S134 of drawing 24 mentioned later. According to these information, the terminal unit 100 for pachinko games or 140 chooses desired image data, reads from ROM110, and displays the read image data on display 116 as a picture.

[0212] Drawing 23 is a flow chart which shows the sub routine performed in a server 80 corresponding to the sub routine of drawing 22 mentioned above. The server 80 shall be started beforehand, and the sub routine shown in drawing 23 shall be called and performed from the main routine currently performed beforehand.

[0213] First, image data and sound data are transmitted to the terminal unit 100 for pachinko games which is a terminal, or 140 (Step S111). As this step is equivalent to Step S101 mentioned above and being mentioned above, this image data is image data not only containing the thing about an adjustable display game but the thing about pachinko games, such as the game board and a game sphere. Moreover, the above-mentioned sound data are sound data used as BGM, a sound effect, voice, etc., and contain the sound data made to generate the sound which the effect of a binaural sound makes. Next, the operation information emitted from the terminal unit 100 for pachinko games or 140 is received (Step S112). This step is processing corresponding to Step S103 mentioned above.

[0214] When the operation information emitted from the terminal unit 100 for pachinko games or 140 is received, it judges whether the received operation information is game sphere discharge operation information (Step S113). When it judges that operation information is game sphere discharge operation information, pachinko game processing mentioned later is performed (Step S114). In Step S112 mentioned above, when the operation information emitted from the terminal unit 100 for pachinko games or 140 is not received, processing of Step S114 is performed immediately.

[0215] When it, on the other hand, judges that operation information is not game sphere discharge operation information in Step S113, or when processing of Step

S114 is performed, the instruction information generated by the pachinko game processing performed in Step S114 is transmitted to the terminal unit 100 for pachinko games, or 140 (Step S115). Processing of this step S115 is processing corresponding to Step S104 mentioned above.

[0216] Subsequently, it judges whether the transmitted instruction information is end instruction information (Step S116). When it judges that the transmitted instruction information is not end instruction information, processing is returned to Step S112 mentioned above.

[0217] Drawing 24 is a flow chart which shows the sub routine of the pachinko game processing called in Step S114 mentioned above. It judges whether first, the picture of a game sphere is moved and it displays (Step S121). When it judges that the picture of a game sphere is moved and it displays, that it should be displayed that the picture of a game sphere can check by looking so that a game sphere may move, the position of the movement place of the game sphere in a picture is calculated, and the position is generated as positional information (Step S122).

[0218] Next, it judges whether the position of the picture of the game sphere calculated in whether the ball game sphere went into the winning-a-prize mouth and Step S121 is near the position of the picture which shows a winning-a-prize mouth (Step S123). This winning-a-prize mouth is the general winning-a-prize mouth 50 shown in drawing 6 mentioned above, 54a-54d, and a picture portion specially corresponding to the winning-a-prize mouths 56a-56d. When it judges that the calculated position is near the position of a winning-a-prize mouth, processing which pays out a game sphere is performed (Step S124). In addition, the processing which pays out this game sphere is processing generated that the number information of game spheres which the number of the game spheres beforehand defined according to the kind of winning-a-prize mouth is memorized to RAM86, or shows the number of game spheres should be transmitted to the terminal unit 100 for pachinko games, or 140.

[0219] Subsequently, it judges whether the position of the picture of the game sphere calculated in whether the game sphere went into the starting mouth and Step S121 is near the position of the picture which shows a starting mouth (Step S125). In addition, this starting mouth is a picture portion corresponding to the starting mouth 44 shown in drawing 6 mentioned above. When it judges that the calculated position is near the position of a starting mouth, processing which starts the adjustable display game mentioned later is performed (Step S126). In addition, the processing which starts this adjustable display game performs adjustable display game processing which internal lottery processing in which the combination of the identification information displayed on a display 132 is defined is performed, and shows it in drawing 25 mentioned later, when the pattern which is identification information is decided.

[0220] Next, it judges whether the position of the picture of the game sphere which the game sphere passed the sphere passage detector, or was calculated in Step

S121 is near the position of the picture which shows a sphere passage detector (Step S127). In addition, this sphere passage detector is a picture portion corresponding to the sphere passage detectors 55a and 55b shown in drawing 6 mentioned above. When it judges that the game sphere passed near the sphere passage detector, the selection image information which shows the picture which indicates by change, and which was made to usually choose the picture of a pattern and was chosen is made to generate in this step S127 in the display 152 displayed on the terminal unit 100 for pachinko games, or 140 (Step S128).

[0221] Subsequently, in the display 152 displayed on the terminal unit 100 for pachinko games, or 140, a pattern usually judges whether it stopped in the displayed predetermined pattern (Step S129). When a pattern usually judges that it stopped in the predetermined pattern, the picture of a movable piece is chosen and the selection image information which shows the selected picture is generated so that the picture from which the starting mouth mentioned above will be in an open state may be displayed (Step S130). When this selection image information is emitted by the terminal unit 100 for pachinko games, or 140, in the terminal unit 100 for pachinko games, or the display 116 of 140, the picture which can be checked by looking as the movable piece is in the open state is displayed. In addition, a movable piece is a picture portion corresponding to the movable pieces 58a and 58b shown in drawing 6 mentioned above.

[0222] Next, it judges whether the ornament lamp is indicated by lighting or it indicates by putting out lights (Step S131). When it judges that an ornament lamp displays [ lighting ] or displays [ putting-out-lights ], the selection image information which chooses an each of the state picture, and shows the selected picture is generated (Step S132). This ornament lamp is a picture portion corresponding to the ornament lamps 36a and 36b shown in drawing 6 mentioned above. When the selection image information mentioned above is emitted by the terminal unit 100 for pachinko games, or 140, the picture which can be checked by looking as the light is switched on, or the picture which can be checked by looking as the light is put out is displayed on the picture portion of the ornament lamps 36a and 36b currently displayed in display 116.

[0223] Subsequently, it judges whether the game was completed or not (Step S133). When it judges that the game was completed, game end information is generated (Step S134), and this sub routine is ended. In addition, whether the game was completed or not judges that the game was completed, when operation in which the game person who operates the terminal unit 100 for pachinko games or 140 ends a game was carried out, or when the number of the game spheres discharged to the game face of a board turns into more than a predetermined number.

[0224] Drawing 25 is a flow chart which shows the sub routine which processes the adjustable display game called and performed in Step S126 mentioned above. First, the background image which should be displayed on the display 132 of the terminal unit 100 for pachinko games or the display 116 of 140, the picture of a change

pattern, and a character picture are chosen (Steps S141, S142, and S143).

[0225] Next, when it judges whether it is the timing which displays a preliminary announcement character picture (Step S144) and it is judged that it is the timing which displays the above-mentioned preliminary announcement character picture, the preliminary announcement character picture to display is chosen (Step S145). Next, when it judges whether it is the timing which reports ceiling preliminary announcement sound (Step S146) and it is judged that it is the timing which reports ceiling preliminary announcement sound, the sound data made to generate the sound which the effect of the binaural sound which performs a ceiling preliminary announcement makes are chosen (Step S147). Next, when it judges whether it is the timing which indicates the one change pattern by halt (Step S150) and judges that it is the timing which indicates by halt, a change pattern picture is chosen in the mode which indicates the above-mentioned change pattern by halt (Step S151).

[0226] Next, the selection image information of Steps S141–S143 mentioned above and the picture chosen by S145, S147, and S149 and the selection sound data information which shows selected sound data are generated (Step S150). A server 80 transmits the screen configuration information generated at Step S150 mentioned above as instruction information in Step S115 of drawing 23 mentioned above to the terminal unit 100 for pachinko games which is a terminal, or 140.

[0227] On the other hand, the terminal unit 100 for pachinko games or 140 displays the picture which read the data of a picture from ROM110 or RAM112, and was read to the display 132 of display 116 in Step S106 based on the screen configuration information which the received instruction information shows, after receiving in Step S104 of drawing 22 which mentioned above the instruction information transmitted from the server 80. Moreover, based on the selection sound data information which the received instruction information shows, sound data are read from ROM110 or RAM112, a correspondence number is generated, and the sound which the effect of a binaural sound makes by the loudspeaker 118 is outputted based on this correspondence number.

[0228] By doing in this way, a server 80 can control the output of sound by sound which the effect of the binaural sound outputted from a loudspeaker 118 makes in the terminal unit 100 for pachinko games which is a terminal, or the display 132 of 140 to report approaching, or the game has resulted in the ceiling. Next, it judges whether all the patterns stopped (Step S151). When it judges that all the patterns stopped, adjustable display game end information is generated (Step S152), and this sub routine is ended.

[0229] In addition, the sub routine shown in this drawing 25 will be set, by the time an adjustable display game is started and it is not only called, but [ when start processing of the adjustable display game of Step S126 shown in drawing 24 is performed, ] ends, and it is called and performed to predetermined timing.

[0230] When it considers as composition which was mentioned above, in the terminal unit 100 for pachinko games which is a terminal, or 140, a server 80 controls the

terminal unit 100 for pachinko games, or 140 by sound which the effect of the binaural sound outputted from a loudspeaker 118 makes to report approaching, or the game has resulted in the ceiling. By considering as such composition, the sound which the effect of a binaural sound makes can report approaching, or the game has resulted in the ceiling using unique and new methods -- close to his ears [ of for example, a game person ] reports. Consequently, while being able to give admiration excitedly to a game person, the hope about the whereabouts of a game and the degree of excitement can be raised.

[0231] Moreover, since the sound which the effect of a binaural sound makes reports, a game person can recognize a ceiling preliminary announcement, without paying attention special to a display. Therefore, a game person can enjoy [ a game person ] a game in comfort. In addition, it can judge whether the game person was provided with the production expression method concerning this invention which was mentioned above etc. by checking that the enjoyableness in a pachinko game is increasing. For example, the economical phenomenon of the store which adopted pachinko game equipment which was mentioned above prospering, and when being carried by the magazine etc., it becomes the phenomenon in which information permeates through media, such as becoming reputation, and will appear.

[0232]

[Effect of the Invention] According to this invention, the sound which the effect of a binaural sound makes can report approaching, or the game has resulted in the ceiling using unique and new methods -- close to his ears [ of for example, a game person ] reports. Consequently, while being able to give admiration excitedly to a game person, the hope about the whereabouts of a game and the degree of excitement can be raised. Moreover, since the sound which the effect of a binaural sound makes reports, a game person can recognize a ceiling preliminary announcement, without paying attention special to a display. Therefore, a game person can enjoy [ a game person ] a game in comfort.

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[Translation done.]

\* NOTICES \*

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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
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  - 3.In the drawings, any words are not translated.
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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is explanatory drawing about a virtual source.

[Drawing 2] It is explanatory drawing about a virtual source.

[Drawing 3] It is explanatory drawing about a virtual source.

[Drawing 4] (a) is explanatory drawing about a parametric loudspeaker, (b) is drawing showing typically the frequency spectrum of the nonlinear interaction by the sine wave, and (c) is drawing showing typically the frequency spectrum of the nonlinear interaction by the amplitude modulation wave.

[Drawing 5] It is the front view showing the pachinko game equipment by this invention typically.

[Drawing 6] It is the expansion front view showing typically the game face of a board of the pachinko game equipment by this invention.

[Drawing 7] It is the block diagram showing the control circuit of the pachinko game equipment which is the example of this invention.

[Drawing 8] It is the flow chart which shows the sub routine of processing which detects the game sphere performed in pachinko game equipment.

[Drawing 9] It is the flow chart which shows the sub routine of the adjustable display game processing called and performed in Step S14 of the flow chart shown in drawing 8 .

[Drawing 10] It is the flow chart which shows the reach screen-display manipulation routine in the sub routine of adjustable display game processing.

[Drawing 11] It is the general-view view showing an example of the terminal for pachinko games.

[Drawing 12] It is the general-view view showing other examples of the terminal for pachinko games.

[Drawing 13] It is the block diagram showing the control circuit of the terminal unit for pachinko games which is the example of this invention.

[Drawing 14] It is the block diagram showing the control circuit of the server which is the example of this invention.

[Drawing 15] It is the flow chart which shows the sub routine performed in the terminal unit 100 for pachinko games which is the example of this invention, or 140.

[Drawing 16] In the server 80 which is the example of this invention, it is the flow chart which shows the sub routine performed.

[Drawing 17] It is the flow chart which shows the sub routine performed in the terminal unit 100 for pachinko games, or 140.

[Drawing 18] It is the flow chart which shows the sub routine which processes the adjustable display game performed in the terminal unit 100 for pachinko games, or 140.

[Drawing 19] In the server 80 which is the example of this invention, it is the flow chart which shows the sub routine performed.

[Drawing 20] It is the flow chart which shows the sub routine which processes the adjustable display game performed in the terminal unit 100 for pachinko games, or 140.

[Drawing 21] In the server 80 which is the example of this invention, it is the flow chart which shows the sub routine performed.

[Drawing 22] It is the flow chart which shows the sub routine performed in the terminal unit 100 for pachinko games, or 140.

[Drawing 23] In the server 80 which is the example of this invention, it is the flow chart which shows the sub routine performed.

[Drawing 24] In Step S114 of the flow chart of drawing 22 , it is the flow chart which shows the sub routine of the pachinko game processing called.

[Drawing 25] In Step S126 of the flow chart of drawing 23 , it is the flow chart which shows the sub routine of the pachinko game processing called.

[Description of Notations]

10 Pachinko Game Equipment (Game Machine)

32 Display (Display)

48 (48a, 48b) Loudspeaker

60 Control Circuit

66 CPU (Control Section)

64 Input/output Bus

68 ROM

70 RAM

80 Server

100 Terminal Unit for Pachinko Games (Terminal)

132 Display

140 Terminal Unit for Pachinko Games (Terminal)

201 (201a, 201b) Loudspeaker

500 Parametric Loudspeaker

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[Translation done.]

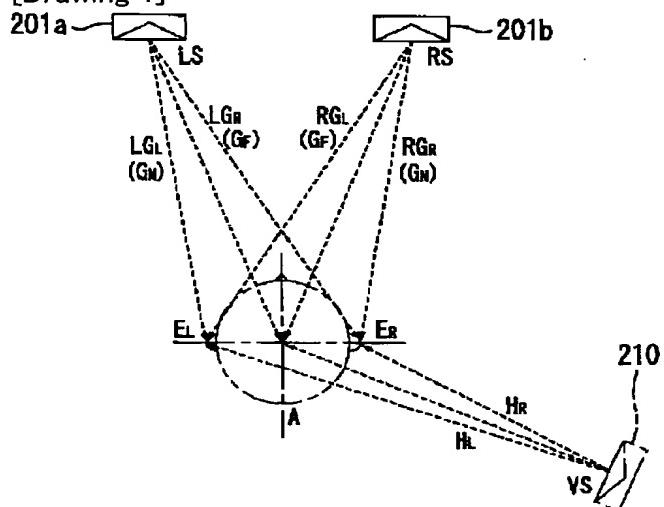
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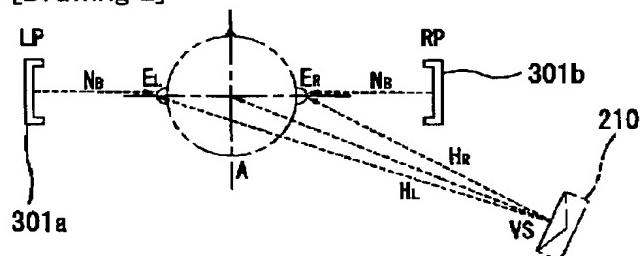
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## DRAWINGS

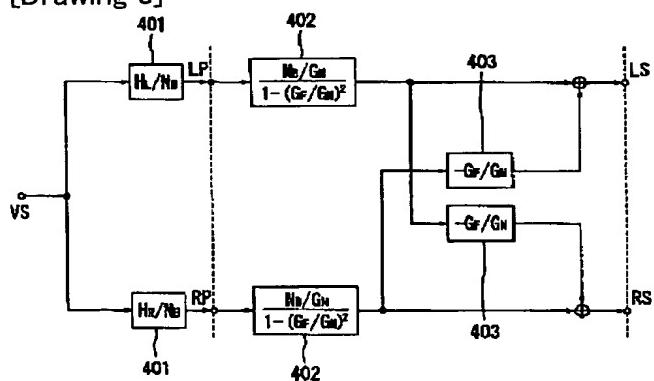
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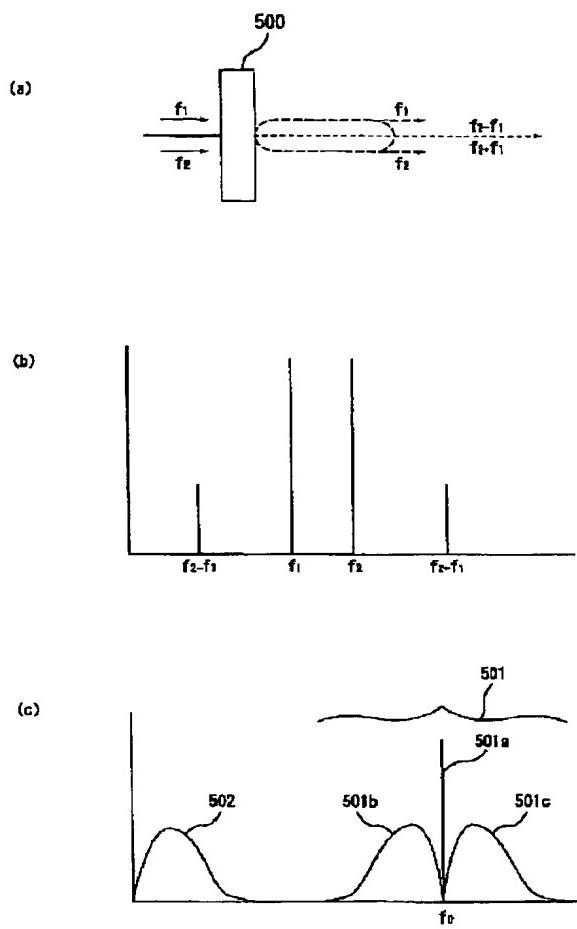
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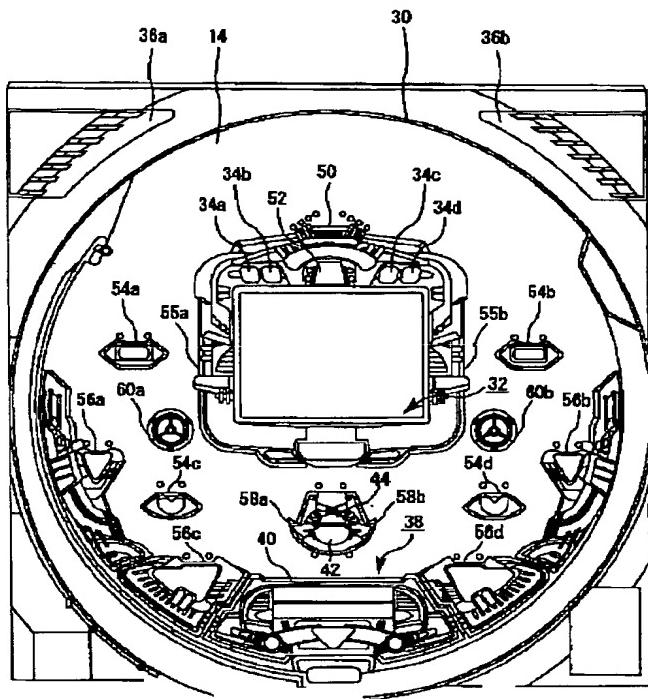
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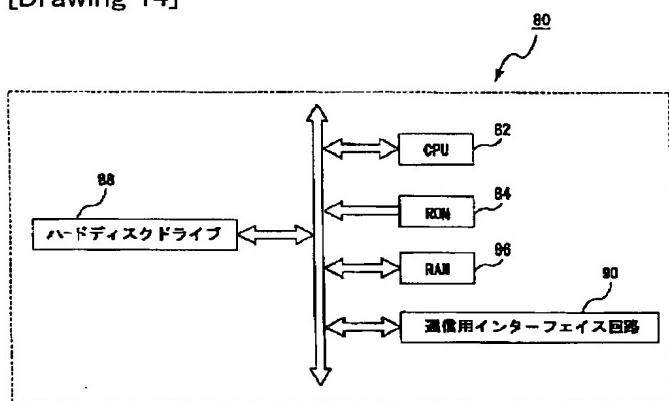
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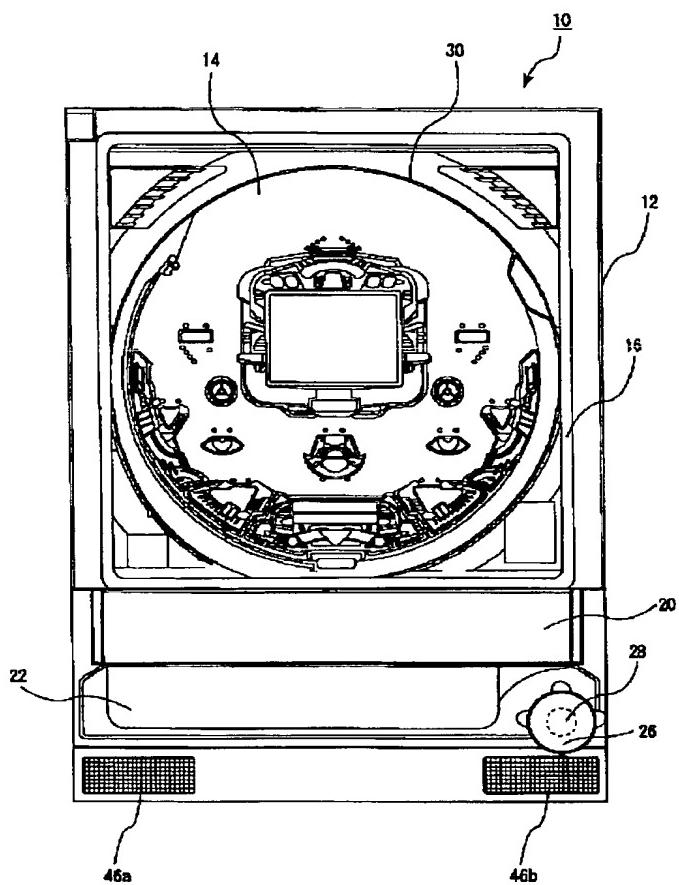
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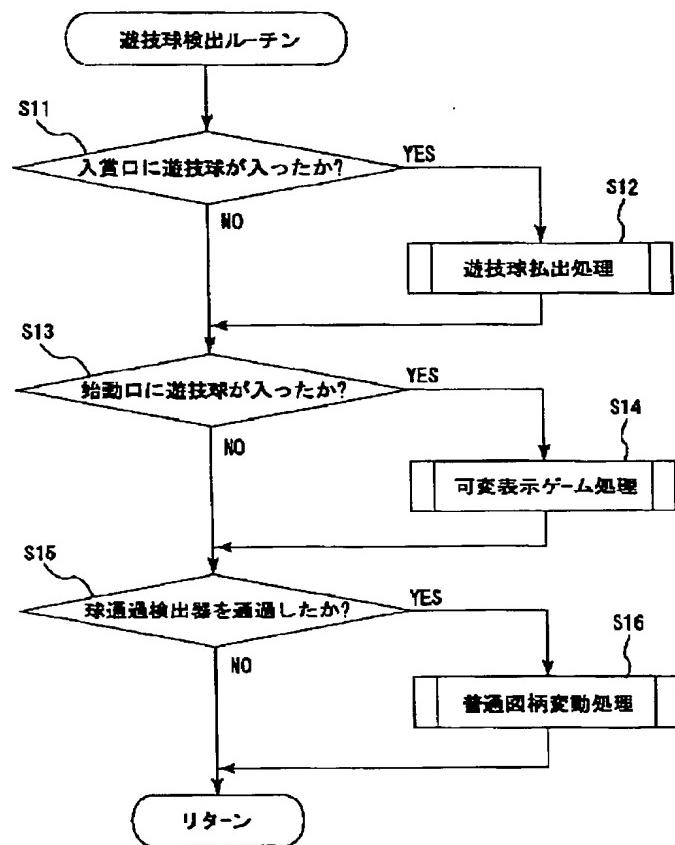
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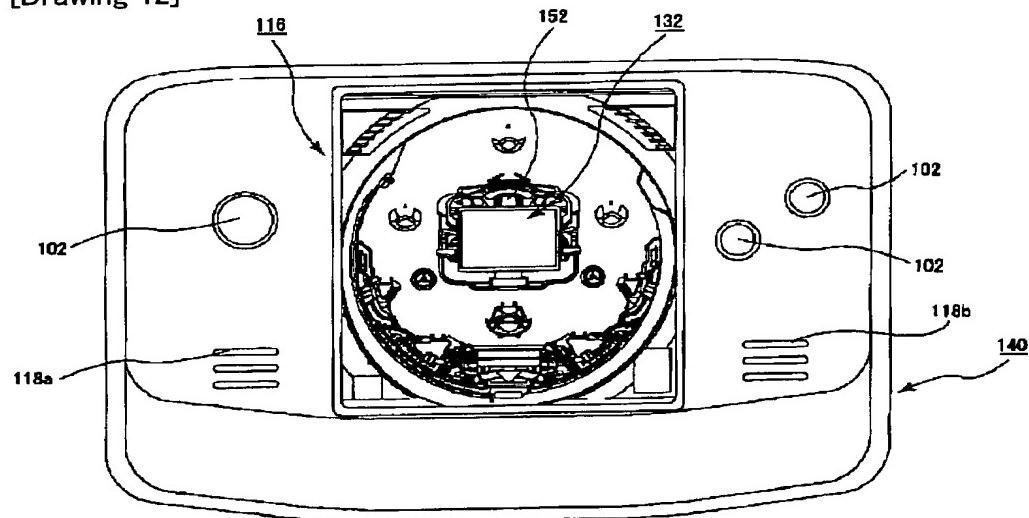
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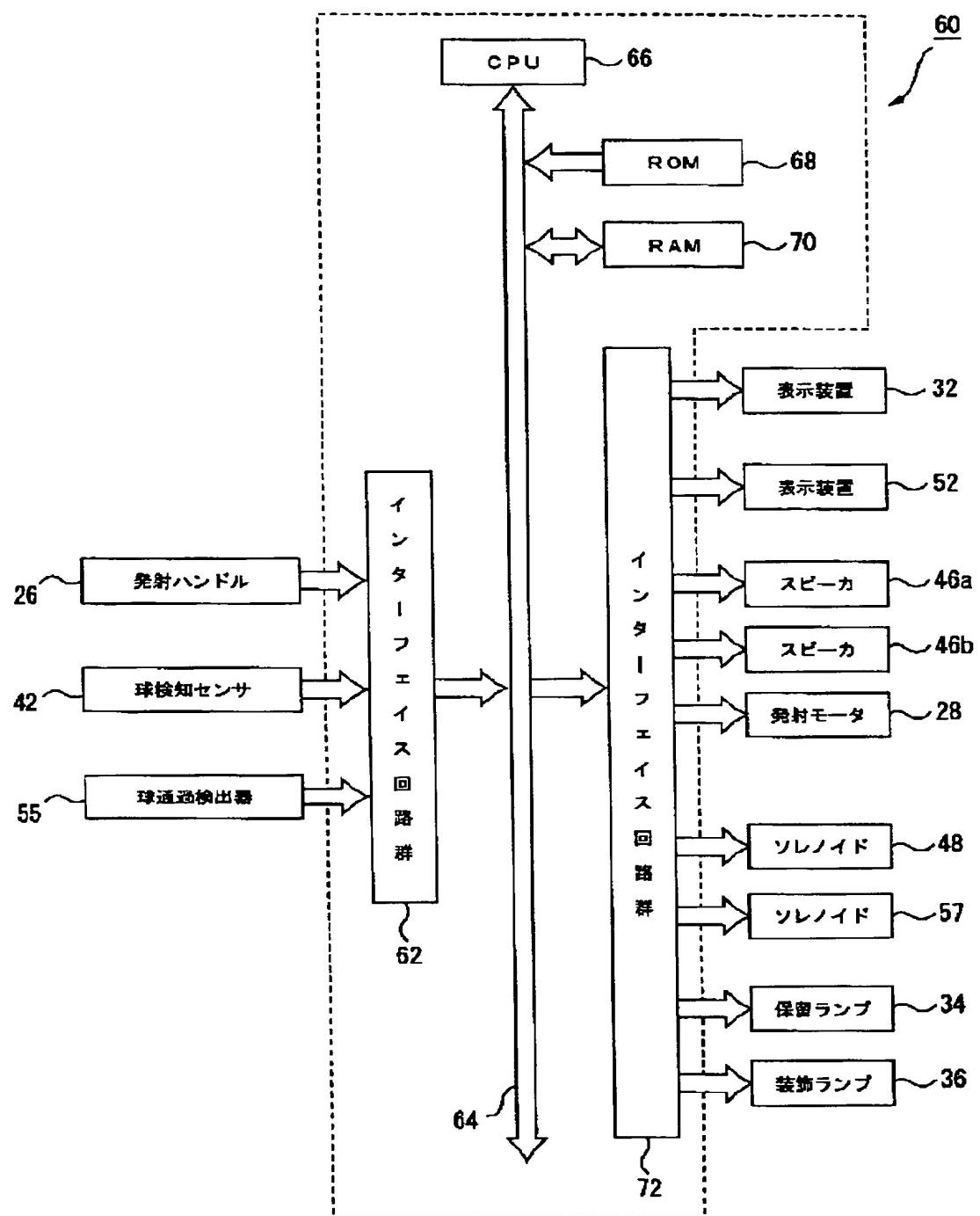
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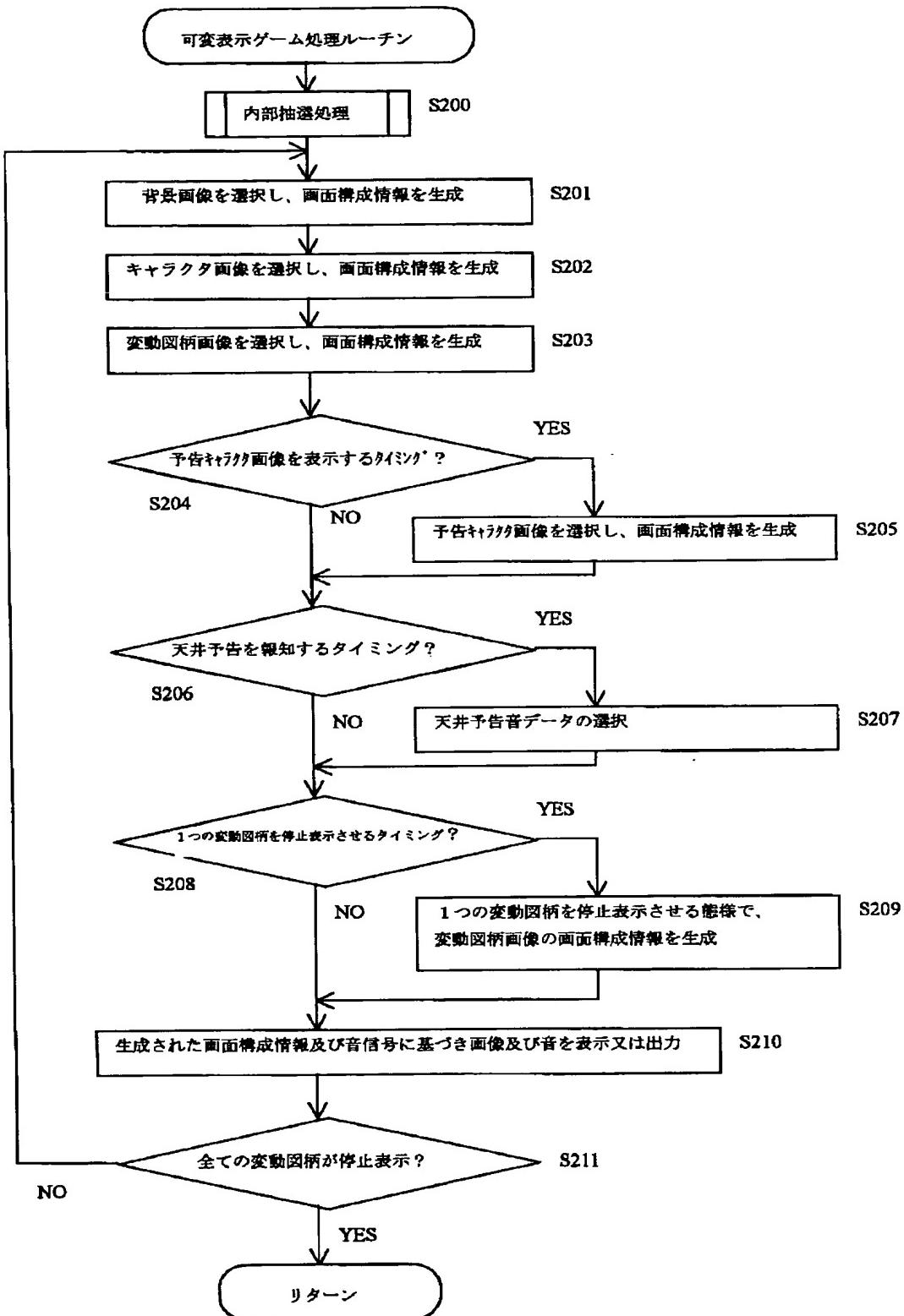
[Drawing 12]



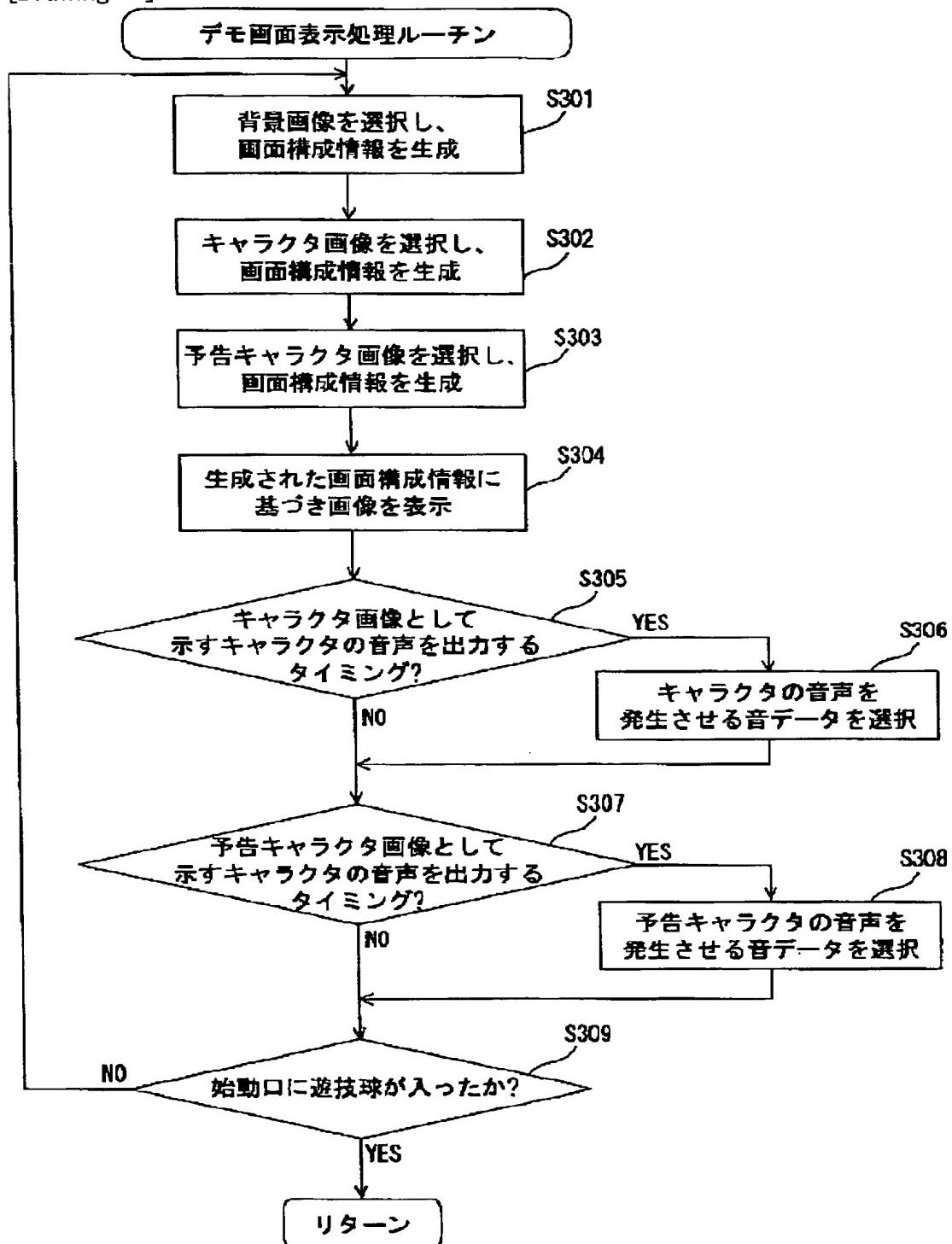
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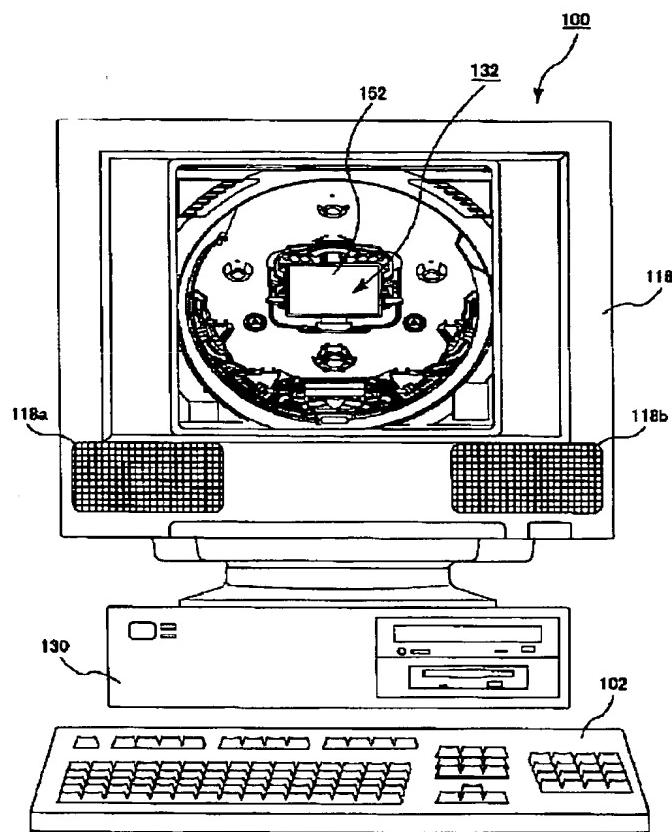
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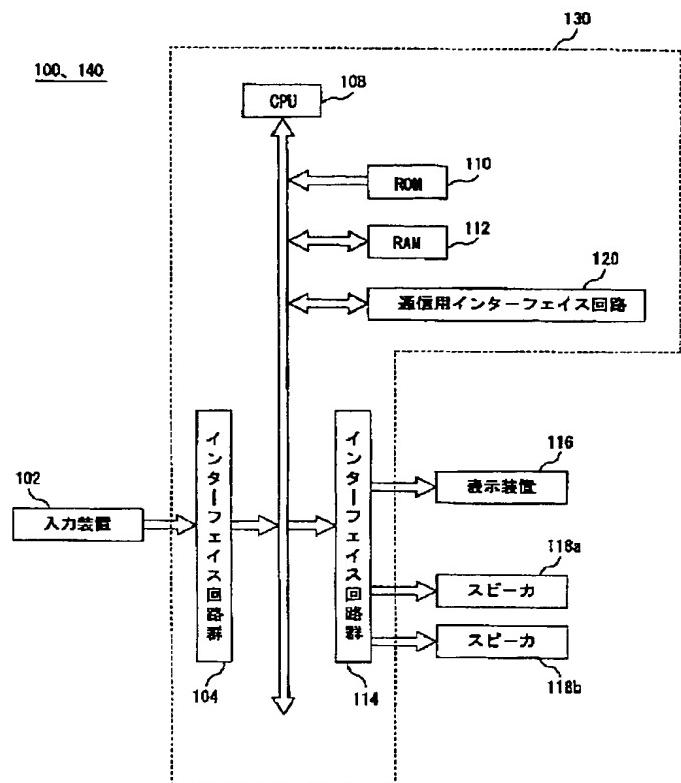
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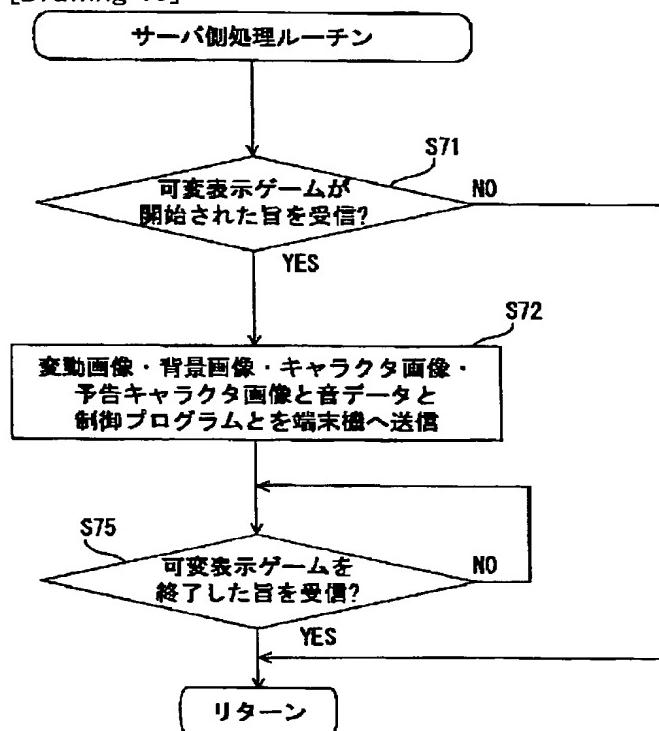
[Drawing 11]



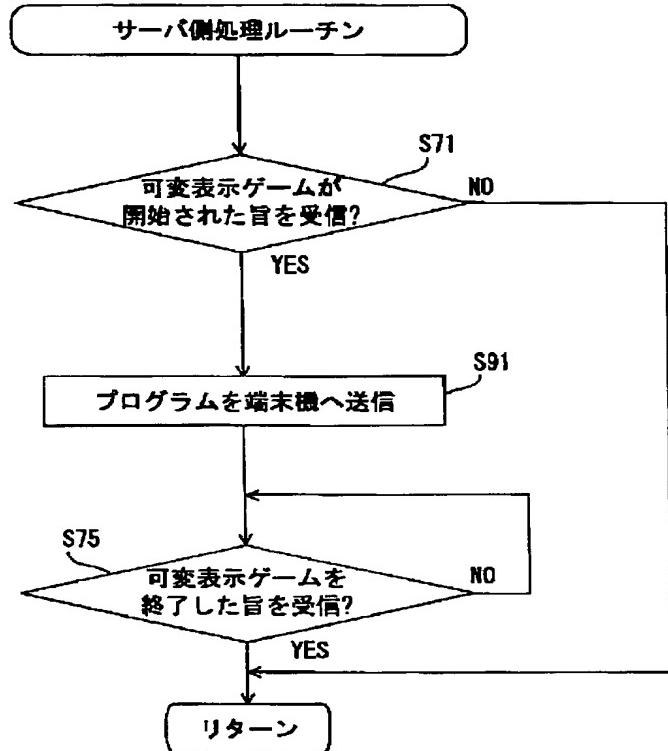
[Drawing 13]



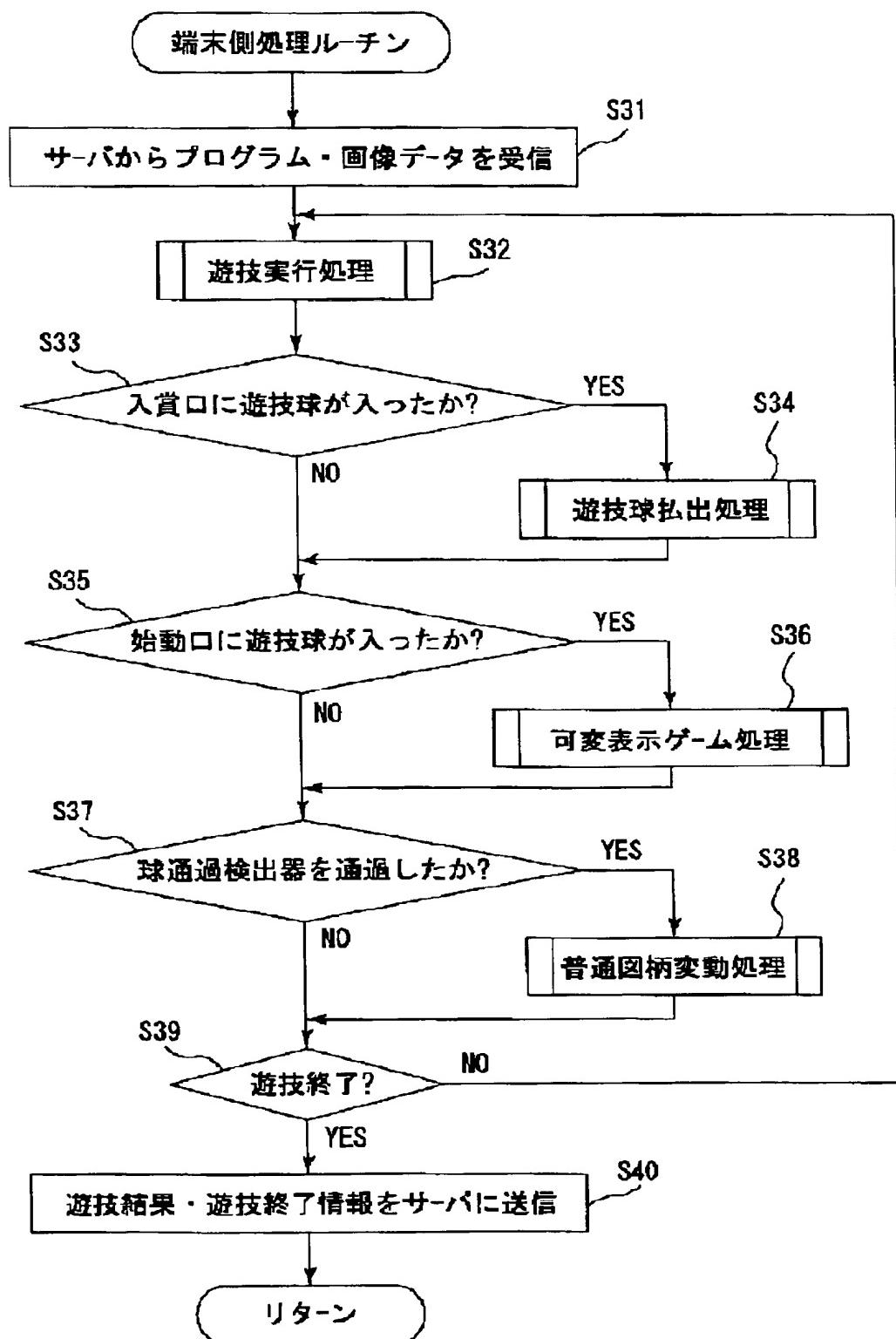
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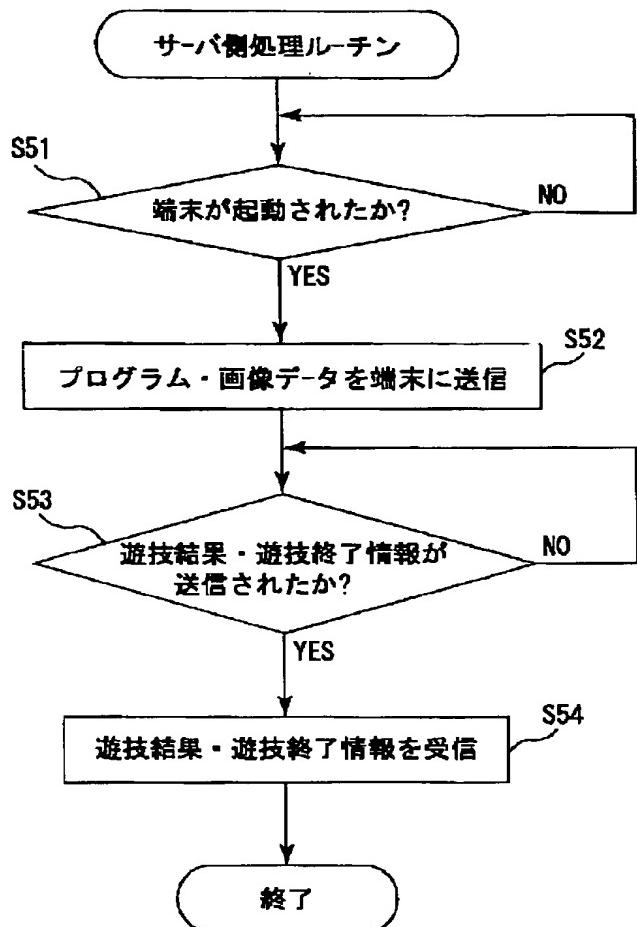
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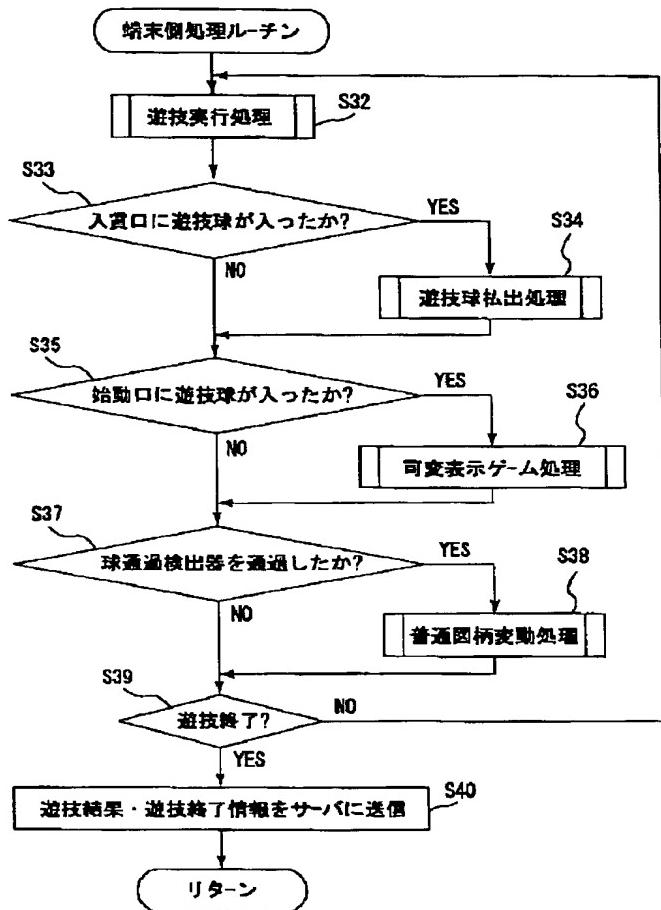
[Drawing 15]



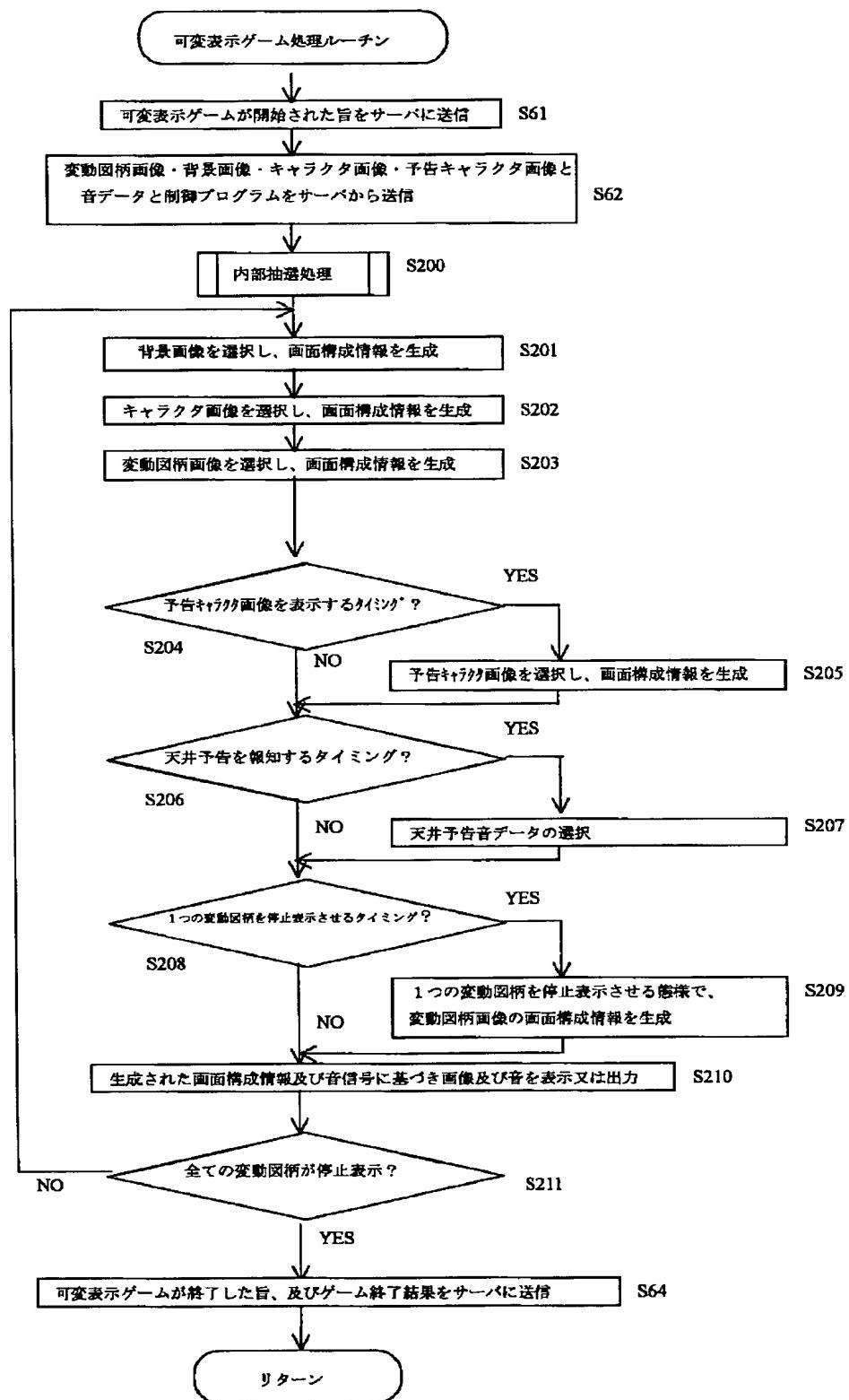
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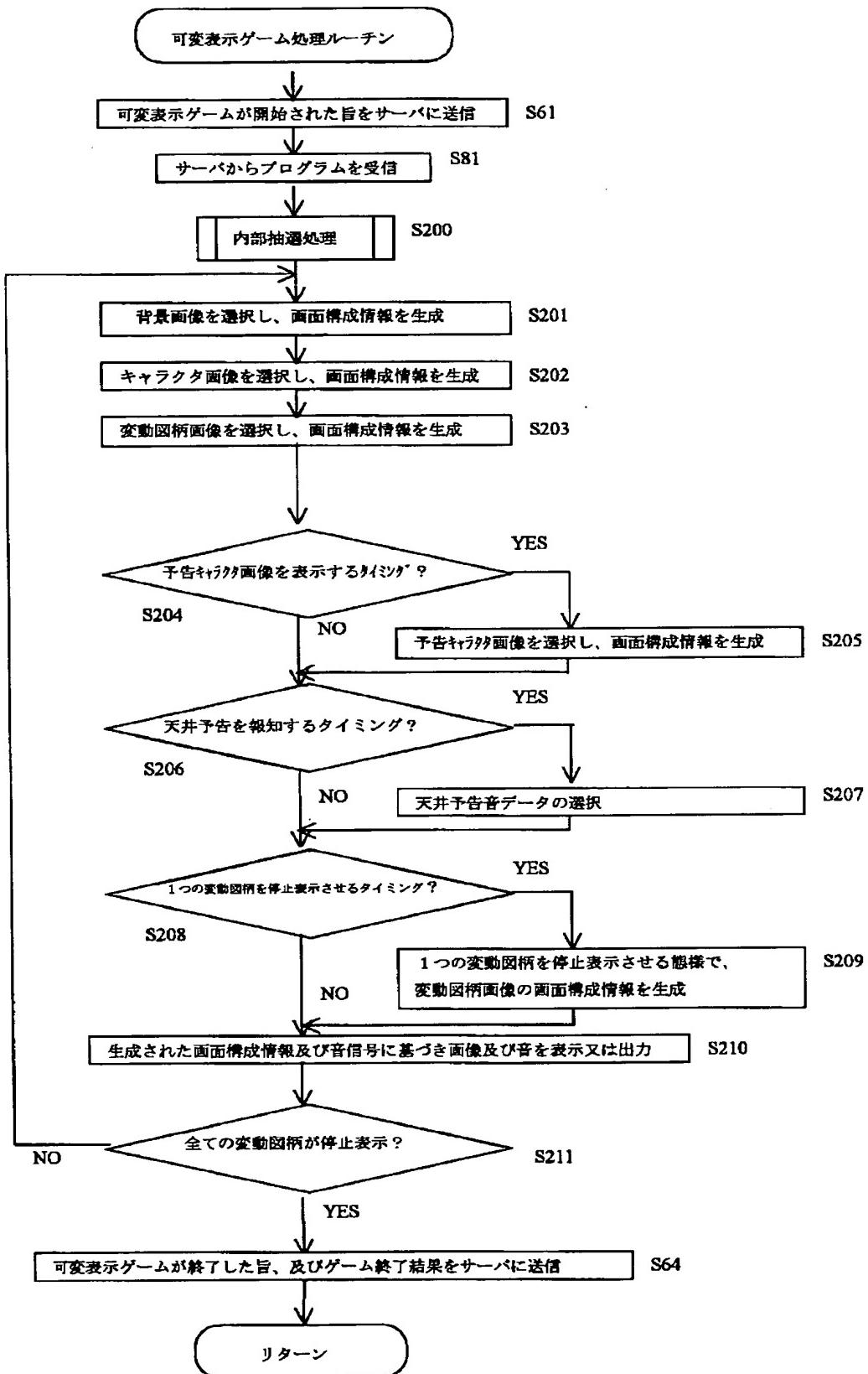
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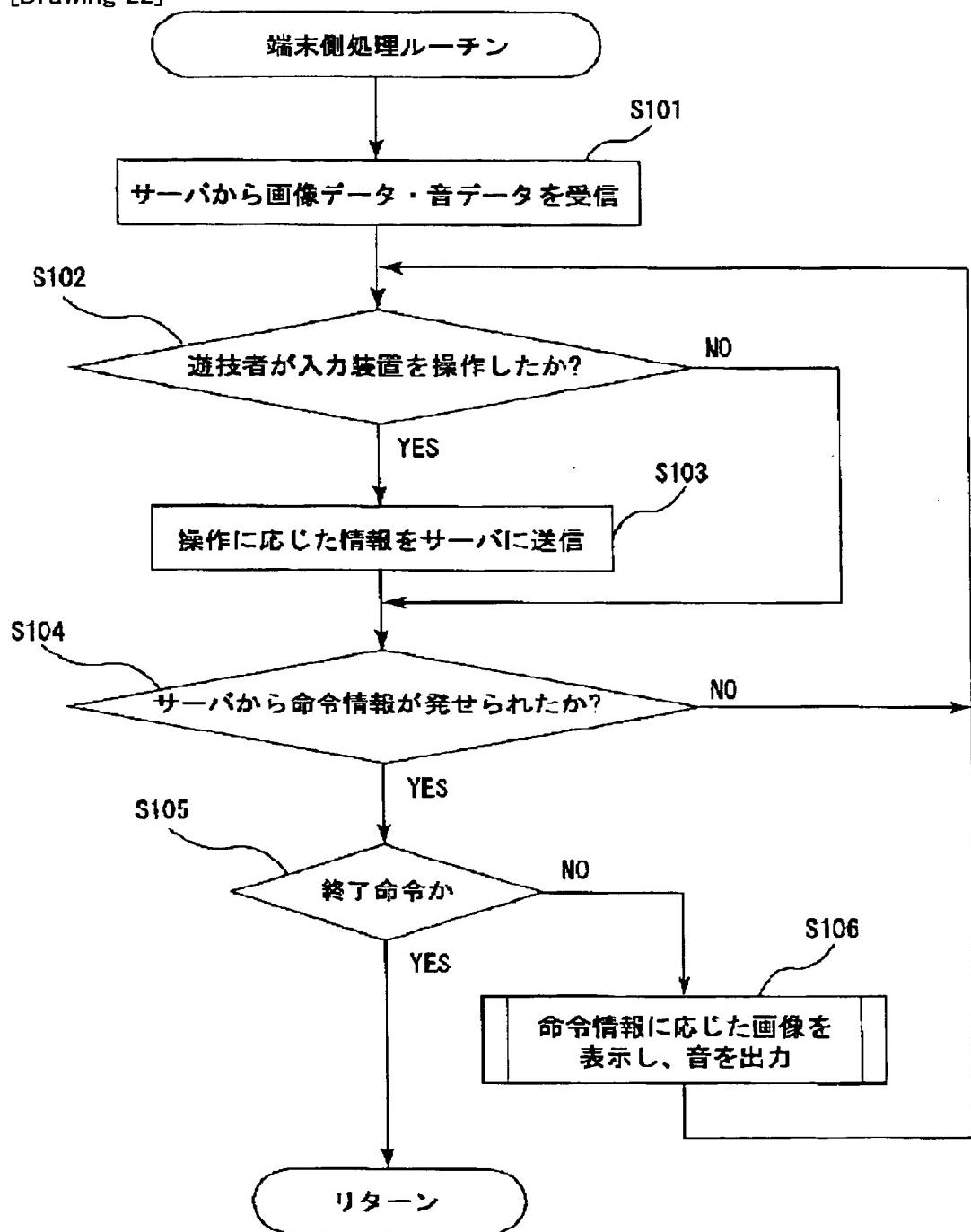
[Drawing 18]



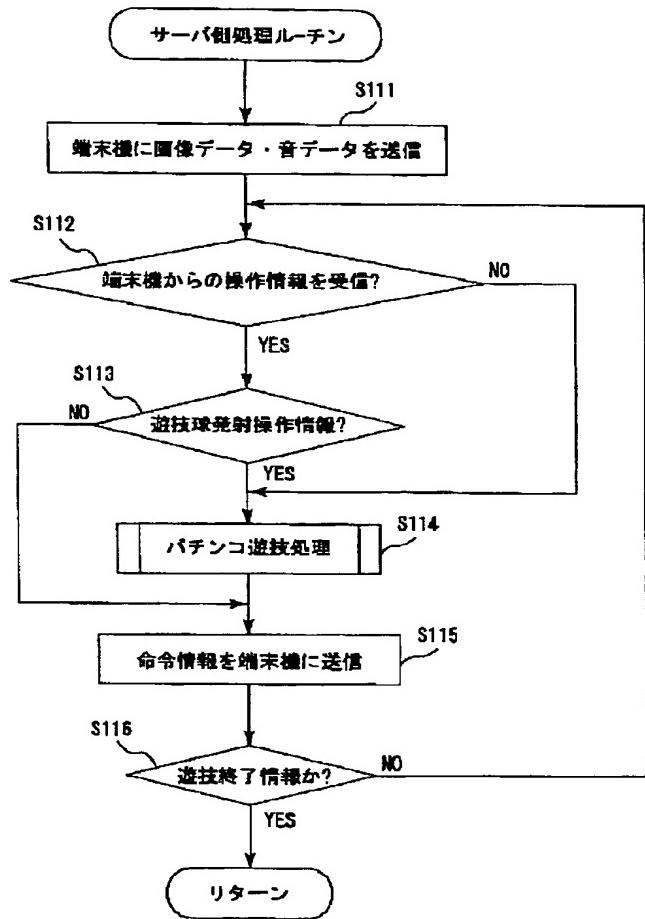
[Drawing 20]



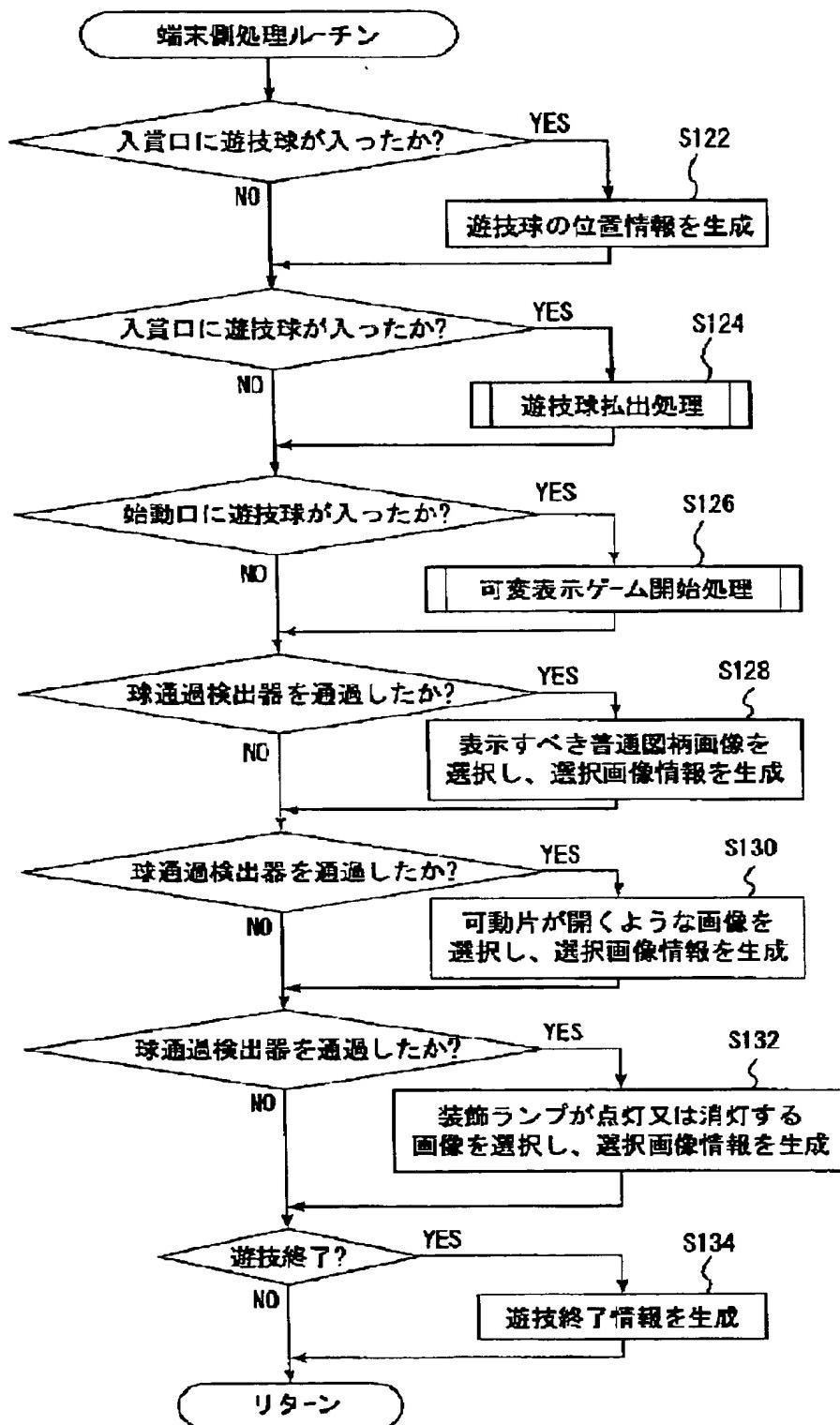
[Drawing 22]



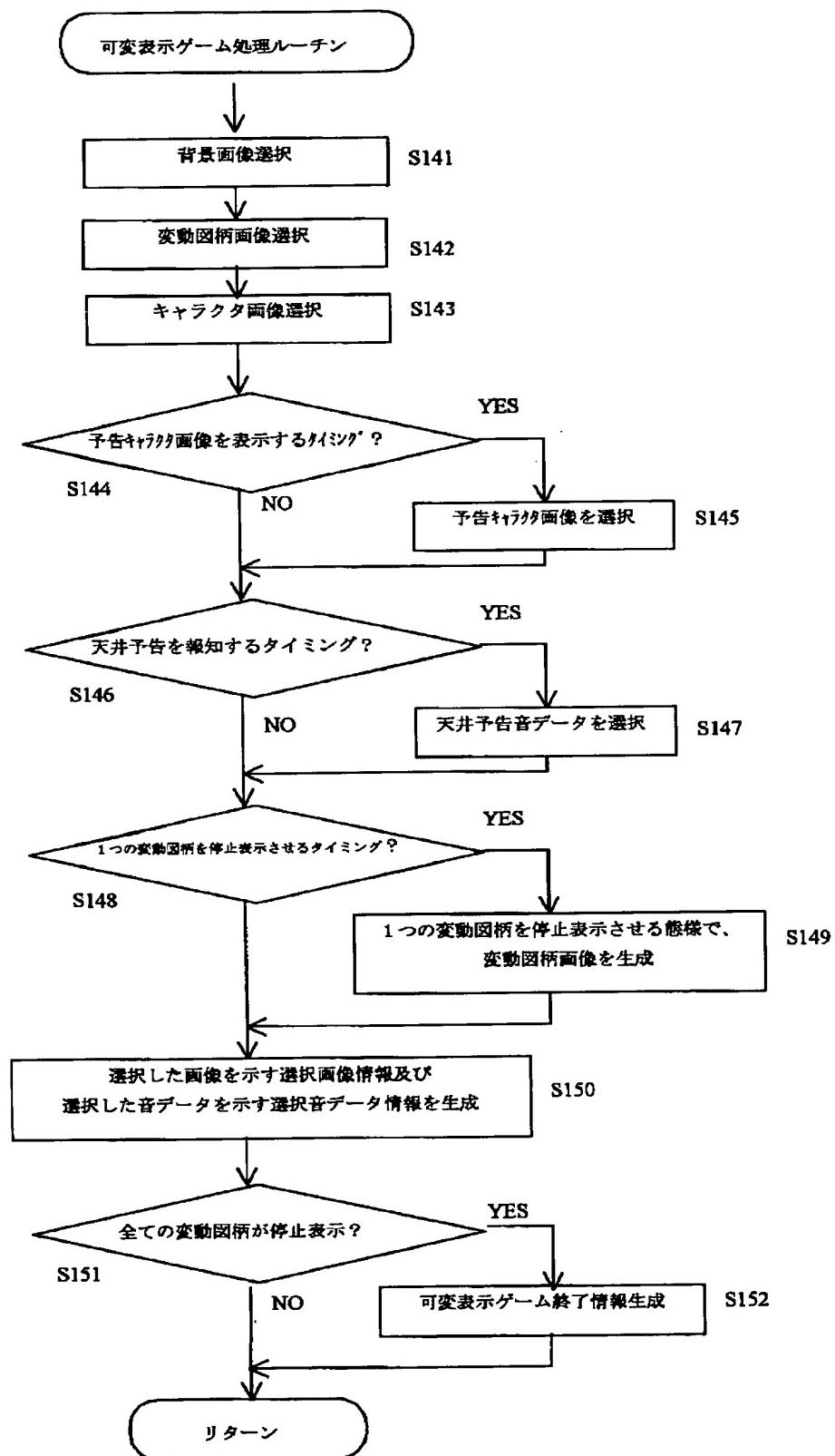
[Drawing 23]



[Drawing 24]



[Drawing 25]



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[Translation done.]